

SEQUENCE LISTING

<110> SHIMADA, Hideaki
 TOMONAGA, Takeshi
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 MATSUSHITA, Kazuyuki
 OCHIAI, Takenori
 NOMURA, Fumio

<120> Human solid tumor-specific proteins

<130> PH-2406PCT

<150> JP 2004-095732

<150> 2004-03-29

<160> 75

<170> PatentIn version 3.1

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| Met Leu Ser Ala Leu Ala Arg Pro Ala | |
| 1 5 | |
| agc gct gct ctc cgc cgc agc ttc agc acc tcg gcc cag aac aat gct | 161 |
| Ser Ala Ala Leu Arg Arg Ser Phe Ser Thr Ser Ala Gln Asn Asn Ala | |
| 10 15 20 25 | |
| aaa gta gct gtg cta ggg gcc tct gga ggc atc ggg cag cca ctt tca | 209 |
| Lys Val Ala Val Leu Gly Ala Ser Gly Gly Ile Gly Gln Pro Leu Ser | |
| 30 35 40 | |
| ctt ctc ctg aag aac agc ccc ttg gtg agc cgc ctg acc ctc tat gat | 257 |
| Leu Leu Leu Lys Asn Ser Pro Leu Val Ser Arg Leu Thr Leu Tyr Asp | |
| 45 50 55 | |
| atc gcg cac aca ccc gga gtg gcc gca gat ctg agc cac atc gag acc | 305 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Ala | His | Thr | Pro | Gly | Val | Ala | Ala | Asp | Leu | Ser | His | Ile | Glu | Thr | | |
| | 60 | | | | | | 65 | | | | | 70 | | | | | |
| aaa | gcc | gct | gtg | aaa | ggc | tac | ctc | gga | cct | gaa | cag | ctg | cct | gac | tgc | 353 | |
| Lys | Ala | Ala | Val | Lys | Gly | Tyr | Leu | Gly | Pro | Glu | Gln | Leu | Pro | Asp | Cys | | |
| | 75 | | | | | 80 | | | | | 85 | | | | | | |
| ctg | aaa | ggc | tgt | gat | gtg | gta | gtt | att | ccg | gct | gga | gtc | ccc | aga | aag | 401 | |
| Leu | Lys | Gly | Cys | Asp | Val | Val | Val | Ile | Pro | Ala | Gly | Val | Pro | Arg | Lys | | |
| 90 | | | | | 95 | | | | 100 | | | | | | 105 | | |
| cca | ggc | atg | acc | cgg | gac | gac | ctg | ttc | aac | acc | aat | gcc | acg | att | gtg | 449 | |
| Pro | Gly | Met | Thr | Arg | Asp | Asp | Leu | Phe | Asn | Thr | Asn | Ala | Thr | Ile | Val | | |
| | | | | 110 | | | | 115 | | | | | | 120 | | | |
| gcc | acc | ctg | acc | gct | gcc | tgt | gcc | cag | cac | tgc | ccg | gaa | gcc | atg | atc | 497 | |
| Ala | Thr | Leu | Thr | Ala | Ala | Cys | Ala | Gln | His | Cys | Pro | Glu | Ala | Met | Ile | | |
| | | | 125 | | | | 130 | | | | | | 135 | | | | |
| tgc | gtc | att | gcc | aat | ccg | gtt | aat | tcc | acc | atc | ccc | atc | aca | gca | gaa | 545 | |
| Cys | Val | Ile | Ala | Asn | Pro | Val | Asn | Ser | Thr | Ile | Pro | Ile | Thr | Ala | Glu | | |
| | 140 | | | | | 145 | | | | | | 150 | | | | | |
| gtt | ttc | aag | aag | cat | gga | gtg | tac | aac | ccc | aac | aaa | atc | ttc | ggc | gtg | 593 | |
| Val | Phe | Lys | Lys | His | Gly | Val | Tyr | Asn | Pro | Asn | Lys | Ile | Phe | Gly | Val | | |
| | 155 | | | | 160 | | | | | | 165 | | | | | | |
| acg | acc | ctg | gac | atc | gtc | aga | gcc | aac | acc | ttt | gtt | gca | gag | ctg | aag | 641 | |
| Thr | Thr | Leu | Asp | Ile | Val | Arg | Ala | Asn | Thr | Phe | Val | Ala | Glu | Leu | Lys | | |
| 170 | | | | | 175 | | | | | 180 | | | | | 185 | | |
| ggc | ttg | gat | cca | gct | cga | gtc | aac | gtc | cct | gtc | att | ggc | ggc | cat | gct | 689 | |
| Gly | Leu | Asp | Pro | Ala | Arg | Val | Asn | Val | Pro | Val | Ile | Gly | Gly | His | Ala | | |
| | | | 190 | | | | | | 195 | | | | | 200 | | | |
| ggg | aag | acc | atc | atc | ccc | ctg | atc | tct | cag | tgc | acc | ccc | aag | gtg | gac | 737 | |
| Gly | Lys | Thr | Ile | Ile | Pro | Leu | Ile | Ser | Gln | Cys | Thr | Pro | Lys | Val | Asp | | |
| | | | 205 | | | | | 210 | | | | | 215 | | | | |
| ttt | ccc | cag | gac | cag | ctg | aca | gca | ctc | act | ggg | cgg | atc | cag | gag | gcc | 785 | |
| Phe | Pro | Gln | Asp | Gln | Leu | Thr | Ala | Leu | Thr | Gly | Arg | Ile | Gln | Glu | Ala | | |
| | 220 | | | | | | 225 | | | | | 230 | | | | | |
| ggc | acg | gag | gtg | gtc | aag | gct | aaa | gcc | gga | gca | ggc | tct | gcc | acc | ctc | 833 | |
| Gly | Thr | Glu | Val | Val | Lys | Ala | Lys | Ala | Gly | Ala | Gly | Ser | Ala | Thr | Leu | | |
| | 235 | | | | | 240 | | | | | 245 | | | | | | |
| tcc | atg | gcg | tat | gcc | ggc | gcc | cgc | ttt | gtc | ttc | tcc | ctt | gtg | gat | gca | 881 | |
| Ser | Met | Ala | Tyr | Ala | Gly | Ala | Arg | Phe | Val | Phe | Ser | Leu | Val | Asp | Ala | | |
| 250 | | | | | 255 | | | | | 260 | | | | | 265 | | |

| | |
|---|-----|
| atg aat gga aag gaa ggt gtt gtg gaa tgt tcc ttc gtt aag tca cag | 929 |
| Met Asn Gly Lys Glu Gly Val Val Glu Cys Ser Phe Val Lys Ser Gln | |
| 270 275 280 | |

| | |
|---|-----|
| gaa acg gaa tgt acc tac ttc tcc aca ccg ctg ctg ctt ggg aaa aag | 977 |
| Glu Thr Glu Cys Thr Tyr Phe Ser Thr Pro Leu Leu Leu Gly Lys Lys | |
| 285 290 295 | |

| | |
|---|------|
| ggc atc gag aag aac ctg ggc atc ggc aaa gtc tcc tct ttt gag gag | 1025 |
| Gly Ile Glu Lys Asn Leu Gly Ile Gly Lys Val Ser Ser Phe Glu Glu | |
| 300 305 310 | |

| | |
|---|------|
| aag atg atc tcg gat gcc atc ccc gag ctg aag gcc tcc atc aag aag | 1073 |
| Lys Met Ile Ser Asp Ala Ile Pro Glu Leu Lys Ala Ser Ile Lys Lys | |
| 315 320 325 | |

| | |
|---|------|
| ggg gaa gat ttc gtg aag acc ctg aag tga gccgctgtga cgggtggcca | 1123 |
| Gly Glu Asp Phe Val Lys Thr Leu Lys | |
| 330 335 | |

| | |
|---|------|
| gtttccttaa tttatgaagg catcatgtca ctgcaaagcc gttgcagata aactttgtat | 1183 |
|---|------|

| | |
|---|------|
| tttaatttgc tttggtgatg attactgtat tgacatcatc atgccttcca aattgtgggt | 1243 |
|---|------|

| | |
|---|------|
| ggctctgtgg gcgcatcaat aaaagccgtc cttgatttta tttttcaagg tcccttctgt | 1303 |
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|---------------------|------|
| aaaaaaaaa aaaaaaaaa | 1321 |
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| Phe Ser Thr Ser Ala Gln Asn Asn Ala Lys Val Ala Val Leu Gly Ala |
| 20 25 30 |

| |
|---|
| Ser Gly Gly Ile Gly Gln Pro Leu Ser Leu Leu Leu Lys Asn Ser Pro |
| 35 40 45 |

| |
|---|
| Leu Val Ser Arg Leu Thr Leu Tyr Asp Ile Ala His Thr Pro Gly Val |
| 3/201 |

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55

60

Ala Ala Asp Leu Ser His Ile Glu Thr Lys Ala Ala Val Lys Gly Tyr
65 70 75 80

Leu Gly Pro Glu Gln Leu Pro Asp Cys Leu Lys Gly Cys Asp Val Val
85 90 95

Val Ile Pro Ala Gly Val Pro Arg Lys Pro Gly Met Thr Arg Asp Asp
100 105 110

Leu Phe Asn Thr Asn Ala Thr Ile Val Ala Thr Leu Thr Ala Ala Cys
115 120 125

Ala Gln His Cys Pro Glu Ala Met Ile Cys Val Ile Ala Asn Pro Val
130 135 140

Asn Ser Thr Ile Pro Ile Thr Ala Glu Val Phe Lys Lys His Gly Val
145 150 155 160

Tyr Asn Pro Asn Lys Ile Phe Gly Val Thr Thr Leu Asp Ile Val Arg
165 170 175

Ala Asn Thr Phe Val Ala Glu Leu Lys Gly Leu Asp Pro Ala Arg Val
180 185 190

Asn Val Pro Val Ile Gly Gly His Ala Gly Lys Thr Ile Ile Pro Leu
195 200 205

Ile Ser Gln Cys Thr Pro Lys Val Asp Phe Pro Gln Asp Gln Leu Thr
210 215 220

Ala Leu Thr Gly Arg Ile Gln Glu Ala Gly Thr Glu Val Val Lys Ala
225 230 235 240

Lys Ala Gly Ala Gly Ser Ala Thr Leu Ser Met Ala Tyr Ala Gly Ala
245 250 255

Arg Phe Val Phe Ser Leu Val Asp Ala Met Asn Gly Lys Glu Gly Val
260 265 270

Val Glu Cys Ser Phe Val Lys Ser Gln Glu Thr Glu Cys Thr Tyr Phe
275 280 285

Ser Thr Pro Leu Leu Leu Gly Lys Lys Gly Ile Glu Lys Asn Leu Gly
290 295 300

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Leu Lys

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Met Ala
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ggc ctc aac tcc ctg gag gcg gtg aaa cgc aag atc cag gcc ctg cag 104
Gly Leu Asn Ser Leu Glu Ala Val Lys Arg Lys Ile Gln Ala Leu Gln
5 10 15

cag cag gcg gac gag gcg gaa gac cgc gcg cag gcc ctg cag cgg gag 152
Gln Gln Ala Asp Glu Ala Glu Asp Arg Ala Gln Gly Leu Gln Arg Glu
20 25 30

ctg gac gcc gag cgc gag cgg cgc gag aaa gct gaa ggt gat gtg gcc 200
Leu Asp Gly Glu Arg Glu Arg Arg Glu Lys Ala Glu Gly Asp Val Ala
5/201

| 35 | 40 | 45 | 50 | |
|---|-----|-----|-----|-----|
| gcc ctc aac cga cgc atc cag ctc gtt gag gag gag ttg gac agg gct | | | | 248 |
| Ala Leu Asn Arg Arg Ile Gln Leu Val Glu Glu Glu Leu Asp Arg Ala | 55 | 60 | 65 | |
| cag gaa cga ctg gcc acg gcc ctg cag aag ctg gag gag gca gaa aaa | | | | 296 |
| Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala Glu Lys | 70 | 75 | 80 | |
| gct gca gat gag agt gag aga gga atg aag gtg ata gaa aac cgg gcc | | | | 344 |
| Ala Ala Asp Glu Ser Glu Arg Gly Met Lys Val Ile Glu Asn Arg Ala | 85 | 90 | 95 | |
| atg aag gat gag gag aag atg gag att cag gag atg cag ctc aaa gag | | | | 392 |
| Met Lys Asp Glu Glu Lys Met Glu Ile Gln Glu Met Gln Leu Lys Glu | 100 | 105 | 110 | |
| gcc aag cac att gcg gaa gag gct gac cgc aaa tac gag gag gta gct | | | | 440 |
| Ala Lys His Ile Ala Glu Glu Ala Asp Arg Lys Tyr Glu Glu Val Ala | 115 | 120 | 125 | 130 |
| cgt aag ctg gtc atc ctg gag ggt gag ctg gag agg gca gag gag cgt | | | | 488 |
| Arg Lys Leu Val Ile Leu Glu Gly Glu Leu Glu Arg Ala Glu Glu Arg | 135 | 140 | 145 | |
| gcg gag gtg tct gaa cta aaa tgt ggt gac ctg gaa gaa gaa ctc aag | | | | 536 |
| Ala Glu Val Ser Glu Leu Lys Cys Gly Asp Leu Glu Glu Glu Leu Lys | 150 | 155 | 160 | |
| aat gtt act aac aat ctg aaa tct ctg gag gct gca tct gaa aag tat | | | | 584 |
| Asn Val Thr Asn Asn Leu Lys Ser Leu Glu Ala Ala Ser Glu Lys Tyr | 165 | 170 | 175 | |
| tct gaa aag gag gac aaa tat gaa gaa gaa att aaa ctt ctg tct gac | | | | 632 |
| Ser Glu Lys Glu Asp Lys Tyr Glu Glu Glu Ile Lys Leu Leu Ser Asp | 180 | 185 | 190 | |
| aaa ctg aaa gag gct gag acc cgt gct gaa ttt gca gag aga acg gtt | | | | 680 |
| Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu Phe Ala Glu Arg Thr Val | 195 | 200 | 205 | 210 |
| gca aaa ctg gaa aag aca att gat gac ctg gaa gag aaa ctt gcc cag | | | | 728 |
| Ala Lys Leu Glu Lys Thr Ile Asp Asp Leu Glu Glu Lys Leu Ala Gln | 215 | 220 | 225 | |
| gcc aaa gaa gag aac gtg ggc tta cat cag aca ctg gat cag aca cta | | | | 776 |
| Ala Lys Glu Glu Asn Val Gly Leu His Gln Thr Leu Asp Gln Thr Leu | 230 | 235 | 240 | |

| | |
|---|------|
| aac gaa ctt aac tgt ata taa gcaaaacaga agagtcttgt tccaacagaa | 827 |
| Asn Glu Leu Asn Cys Ile | |
| 245 | |
| | |
| actctggagc tccgtgggtc tttctcttct cttgtaagaa gttccttttg ttattgccat | 887 |
| cttcgctttg ctggaaatgt caagcaaatt atgaatacat gaccaaatat tttgtatcgg | 947 |
| agaagctttg agcaccagtt aaatctcatt ccttcccttt ttttttcaaa tggcaccagc | 1007 |
| tttttcagct ctcttatttt ttccttaagt agcatttatt cctaaggtag gcagggtatt | 1067 |
| tcctagtaag catactttct taagacggag gccatttggg tcctgggaga ataggcagcc | 1127 |
| ccacactttg aagaatacag accccagtat ctagtcgtgg atataattaa aacgctgaag | 1187 |
| accataacct tttgggtcaa ctgttggtca aactatagga gagaccaggg accatcacat | 1247 |
| gggtagggat tttccatcca gagccaataa aaggactggg gggggccggg ggtggctatt | 1307 |
| gtgggaagtc ataaccaca gatagatcaa cctaagaatc ctggcccttc tccactctcc | 1367 |
| accatgcagg acaaacatct tctcaagcag tcaacgtaga atgcttggga aatagtcata | 1427 |
| attaccaca tatagtaatt aatagatggg aattaattga tccttgatgt gatgttcttt | 1487 |
| tgcatatttc cttcattcta aagttgttcc ctggccggga gcgtttgctt tcgcctgtaa | 1547 |
| tccaacact ttgggaggcc aggacagatc acttgaggtc aggagttcga gaccagccca | 1607 |
| gccaacatgg cgaaaccatg tctctactaa aaatacaaaa attatggtga cgcctgcctg | 1667 |
| tagtcccagc tactcgggag gctgaggcag gaggatcgct tgaaccagg aagtggagac | 1727 |
| tgcagtgagc cgatatcgca ccacagcgct ccagcctggg cgacagagtg agactccatc | 1787 |
| tcaagaaaaa ataaaaataa agttgttctc tgaagagcaa atgtctcatt ccagtaatga | 1847 |
| cccactcagc aggaatatgg tggagttcag tccaattcag gtcagccata tccaaaagac | 1907 |
| cacaagtcac tactaagttg agcaaaagag tttttatcta ttagcagaaa gggcctctct | 1967 |
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| aggatttact tatctaggac tt | 2049 |

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35 40 45

Val Ala Ala Leu Asn Arg Arg Ile Gln Leu Val Glu Glu Glu Leu Asp
50 55 60

Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala
65 70 75 80

Glu Lys Ala Ala Asp Glu Ser Glu Arg Gly Met Lys Val Ile Glu Asn
85 90 95

Arg Ala Met Lys Asp Glu Glu Lys Met Glu Ile Gln Glu Met Gln Leu
100 105 110

Lys Glu Ala Lys His Ile Ala Glu Glu Ala Asp Arg Lys Tyr Glu Glu
115 120 125

Val Ala Arg Lys Leu Val Ile Leu Glu Gly Glu Leu Glu Arg Ala Glu
130 135 140

Glu Arg Ala Glu Val Ser Glu Leu Lys Cys Gly Asp Leu Glu Glu Glu
145 150 155 160

Leu Lys Asn Val Thr Asn Asn Leu Lys Ser Leu Glu Ala Ala Ser Glu
165 170 175

Lys Tyr Ser Glu Lys Glu Asp Lys Tyr Glu Glu Glu Ile Lys Leu Leu
180 185 190

Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu Phe Ala Glu Arg
 195 200 205

Thr Val Ala Lys Leu Glu Lys Thr Ile Asp Asp Leu Glu Glu Lys Leu
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Thr Leu Asn Glu Leu Asn Cys Ile
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 ccagctcccg gataaacggc gcgccgcgcg gag atg aca gcc gag gag atg aag 174
 Met Thr Ala Glu Glu Met Lys
 1 5
 gcg acc gag agc ggg gcg cag tcg gcg ccg ctg ccc atg gag gga gtg 222
 Ala Thr Glu Ser Gly Ala Gln Ser Ala Pro Leu Pro Met Glu Gly Val
 10 15 20
 gac atc agc ccc aaa cag gac gaa ggc gtg ctg aag gtc atc aag aga 270
 Asp Ile Ser Pro Lys Gln Asp Glu Gly Val Leu Lys Val Ile Lys Arg
 25 30 35
 gag ggc aca ggt aca gag atg ccc atg att ggg gac cga gtc ttt gtc 318
 Glu Gly Thr Gly Thr Glu Met Pro Met Ile Gly Asp Arg Val Phe Val
 40 45 50 55
 cac tac act ggc tgg cta tta gat ggc aca aag ttt gac tcc agt ctg 366
 9/201

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|
| His | Tyr | Thr | Gly | Trp | Leu | Leu | Asp | Gly | Thr | Lys | Phe | Asp | Ser | Ser | Leu | | |
| | | | | 60 | | | | | 65 | | | | | | 70 | | |
| gat | cgc | aag | gac | aaa | ttc | tcc | ttt | gac | ctg | gga | aaa | ggg | gag | gtc | atc | | 414 |
| Asp | Arg | Lys | Asp | Lys | Phe | Ser | Phe | Asp | Leu | Gly | Lys | Gly | Glu | Val | Ile | | |
| | | | 75 | | | | | 80 | | | | | 85 | | | | |
| aag | gct | tgg | gac | att | gcc | ata | gcc | acc | atg | aag | gtg | ggg | gag | gtg | tgc | | 462 |
| Lys | Ala | Trp | Asp | Ile | Ala | Ile | Ala | Thr | Met | Lys | Val | Gly | Glu | Val | Cys | | |
| | | 90 | | | | | 95 | | | | | 100 | | | | | |
| cac | atc | acc | tgc | aaa | cca | gaa | tat | gcc | tac | ggt | tca | gca | ggc | agt | cct | | 510 |
| His | Ile | Thr | Cys | Lys | Pro | Glu | Tyr | Ala | Tyr | Gly | Ser | Ala | Gly | Ser | Pro | | |
| | 105 | | | | | 110 | | | | | 115 | | | | | | |
| cca | aag | att | ccc | ccc | aat | gcc | acg | ctt | gta | ttt | gag | gtg | gag | ttg | ttt | | 558 |
| Pro | Lys | Ile | Pro | Pro | Asn | Ala | Thr | Leu | Val | Phe | Glu | Val | Glu | Leu | Phe | | |
| 120 | | | | | 125 | | | | | 130 | | | | | 135 | | |
| gag | ttt | aag | gga | gaa | gat | ctg | acg | gaa | gag | gaa | gat | ggc | gga | atc | att | | 606 |
| Glu | Phe | Lys | Gly | Glu | Asp | Leu | Thr | Glu | Glu | Glu | Asp | Gly | Gly | Ile | Ile | | |
| | | | 140 | | | | | 145 | | | | | | 150 | | | |
| cgc | aga | ata | cag | act | cgc | ggt | gaa | ggc | tat | gct | aag | ccc | aat | gag | ggt | | 654 |
| Arg | Arg | Ile | Gln | Thr | Arg | Gly | Glu | Gly | Tyr | Ala | Lys | Pro | Asn | Glu | Gly | | |
| | | | 155 | | | | 160 | | | | | | 165 | | | | |
| gct | atc | gtg | gag | gtt | gca | ctg | gaa | ggg | tac | tac | aag | gac | aag | ctc | ttt | | 702 |
| Ala | Ile | Val | Glu | Val | Ala | Leu | Glu | Gly | Tyr | Tyr | Lys | Asp | Lys | Leu | Phe | | |
| | | 170 | | | | | 175 | | | | | 180 | | | | | |
| gac | cag | cgg | gag | ctc | cgc | ttt | gag | att | ggc | gag | ggg | gag | aac | ctg | gat | | 750 |
| Asp | Gln | Arg | Glu | Leu | Arg | Phe | Glu | Ile | Gly | Glu | Gly | Glu | Asn | Leu | Asp | | |
| | 185 | | | | | 190 | | | | | 195 | | | | | | |
| ctg | cct | tat | ggt | ctg | gag | agg | gcc | att | cag | cgc | atg | gag | aaa | gga | gaa | | 798 |
| Leu | Pro | Tyr | Gly | Leu | Glu | Arg | Ala | Ile | Gln | Arg | Met | Glu | Lys | Gly | Glu | | |
| 200 | | | | | 205 | | | | 210 | | | | | 215 | | | |
| cat | tcc | atc | gtg | tac | ctc | aag | ccc | agc | tat | gct | ttt | ggc | agt | gtt | ggg | | 846 |
| His | Ser | Ile | Val | Tyr | Leu | Lys | Pro | Ser | Tyr | Ala | Phe | Gly | Ser | Val | Gly | | |
| | | | 220 | | | | | 225 | | | | | | 230 | | | |
| aag | gaa | aag | ttc | caa | atc | cca | cca | aat | gct | gag | ctg | aaa | tat | gaa | tta | | 894 |
| Lys | Glu | Lys | Phe | Gln | Ile | Pro | Pro | Asn | Ala | Glu | Leu | Lys | Tyr | Glu | Leu | | |
| | | | 235 | | | | | 240 | | | | | 245 | | | | |
| cac | ctc | aag | agt | ttt | gaa | aag | gcc | aag | gag | tct | tgg | gag | atg | aat | tca | | 942 |
| His | Leu | Lys | Ser | Phe | Glu | Lys | Ala | Lys | Glu | Ser | Trp | Glu | Met | Asn | Ser | | |
| | | 250 | | | | | 255 | | | | | 260 | | | | | |

| | |
|---|------|
| gaa gag aag ctg gaa cag agc acc ata gtg aaa gag cgg ggc act gtg | 990 |
| Glu Glu Lys Leu Glu Gln Ser Thr Ile Val Lys Glu Arg Gly Thr Val | |
| 265 270 275 | |
| tac ttc aag gaa ggt aaa tac aag caa gct tta cta cag tat aag aag | 1038 |
| Tyr Phe Lys Glu Gly Lys Tyr Lys Gln Ala Leu Leu Gln Tyr Lys Lys | |
| 280 285 290 295 | |
| atc gtg tct tgg ctg gaa tat gag tct agt ttt tcc aat gag gaa gca | 1086 |
| Ile Val Ser Trp Leu Glu Tyr Glu Ser Ser Phe Ser Asn Glu Glu Ala | |
| 300 305 310 | |
| cag aaa gca cag gcc ctt cga ctg gcc tct cac ctc aac ctg gcc atg | 1134 |
| Gln Lys Ala Gln Ala Leu Arg Leu Ala Ser His Leu Asn Leu Ala Met | |
| 315 320 325 | |
| tgt cat ctg aaa cta cag gcc ttc tct gct gcc att gaa agc tgt aac | 1182 |
| Cys His Leu Lys Leu Gln Ala Phe Ser Ala Ala Ile Glu Ser Cys Asn | |
| 330 335 340 | |
| aag gcc cta gaa ctg gac agc aac aac gag aag ggc ctc ttc cgc cgg | 1230 |
| Lys Ala Leu Glu Leu Asp Ser Asn Asn Glu Lys Gly Leu Phe Arg Arg | |
| 345 350 355 | |
| gga gag gcc cac ctg gcc gtg aat gac ttt gaa ctg gca cgg gct gat | 1278 |
| Gly Glu Ala His Leu Ala Val Asn Asp Phe Glu Leu Ala Arg Ala Asp | |
| 360 365 370 375 | |
| ttc cag aag gtc ctg cag ctc tac ccc aac aac aaa gcc gcc aag acc | 1326 |
| Phe Gln Lys Val Leu Gln Leu Tyr Pro Asn Asn Lys Ala Ala Lys Thr | |
| 380 385 390 | |
| cag ctg gct gtg tgc cag cag cgg atc cga agg cag ctt gcc cgg gag | 1374 |
| Gln Leu Ala Val Cys Gln Gln Arg Ile Arg Arg Gln Leu Ala Arg Glu | |
| 395 400 405 | |
| aag aag ctc tat gcc aat atg ttt gag agg ctg gct gag gag gag aac | 1422 |
| Lys Lys Leu Tyr Ala Asn Met Phe Glu Arg Leu Ala Glu Glu Glu Asn | |
| 410 415 420 | |
| aag gcc aag gca gag gct tcc tca gga gac cat ccc act gac aca gag | 1470 |
| Lys Ala Lys Ala Glu Ala Ser Ser Gly Asp His Pro Thr Asp Thr Glu | |
| 425 430 435 | |
| atg aag gag gag cag aag agc aac acg gca ggg agc cag tct cag gtg | 1518 |
| Met Lys Glu Glu Gln Lys Ser Asn Thr Ala Gly Ser Gln Ser Gln Val | |
| 440 445 450 455 | |
| gag aca gaa gca tag cccctctcca ccagccctac tcctgaggct gcctgcccc | 1573 |

Glu Thr Glu Ala

```
cagtctcccc actccaccct gttagttttg taaaaactga agaattttga gtgaattaga 1633
cctttatttt tctatctggt tggatggtgg ctttagggga aggggggaaag gtgtaggctg 1693
ggggattgag gtggggaatc attttagctg gtgtcagccc ctcttcctt cctccattgc 1753
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gttaggtcca ttttctaagg gtagaagagg caagtggtag ggatgaggtc tgataagaac 1873
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catttccaaa tgtggcctcc atgtgggtgc tagggacatg ggaaaaacca ctgctatgcc 1993
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ccaggttgtg tcccaaaatc cctcagcct cttctctgca cgttgctgaa ggtccaggct 2173
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aaaaaaaaa aaaaaaaaaa 2251
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<212> PRT
<213> Homo sapiens

<400> 6

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Met Thr Ala Glu Glu Met Lys Ala Thr Glu Ser Gly Ala Gln Ser Ala
1          5          10         15
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Pro Leu Pro Met Glu Gly Val Asp Ile Ser Pro Lys Gln Asp Glu Gly
          20          25         30
```

```
Val Leu Lys Val Ile Lys Arg Glu Gly Thr Gly Thr Glu Met Pro Met
          35          40         45
```

```
Ile Gly Asp Arg Val Phe Val His Tyr Thr Gly Trp Leu Leu Asp Gly
          50          55         60
```

Thr Lys Phe Asp Ser Ser Leu Asp Arg Lys Asp Lys Phe Ser Phe Asp
65 70 75 80

Leu Gly Lys Gly Glu Val Ile Lys Ala Trp Asp Ile Ala Ile Ala Thr
85 90 95

Met Lys Val Gly Glu Val Cys His Ile Thr Cys Lys Pro Glu Tyr Ala
100 105 110

Tyr Gly Ser Ala Gly Ser Pro Pro Lys Ile Pro Pro Asn Ala Thr Leu
115 120 125

Val Phe Glu Val Glu Leu Phe Glu Phe Lys Gly Glu Asp Leu Thr Glu
130 135 140

Glu Glu Asp Gly Gly Ile Ile Arg Arg Ile Gln Thr Arg Gly Glu Gly
145 150 155 160

Tyr Ala Lys Pro Asn Glu Gly Ala Ile Val Glu Val Ala Leu Glu Gly
165 170 175

Tyr Tyr Lys Asp Lys Leu Phe Asp Gln Arg Glu Leu Arg Phe Glu Ile
180 185 190

Gly Glu Gly Glu Asn Leu Asp Leu Pro Tyr Gly Leu Glu Arg Ala Ile
195 200 205

Gln Arg Met Glu Lys Gly Glu His Ser Ile Val Tyr Leu Lys Pro Ser
210 215 220

Tyr Ala Phe Gly Ser Val Gly Lys Glu Lys Phe Gln Ile Pro Pro Asn
225 230 235 240

Ala Glu Leu Lys Tyr Glu Leu His Leu Lys Ser Phe Glu Lys Ala Lys
245 250 255

Glu Ser Trp Glu Met Asn Ser Glu Glu Lys Leu Glu Gln Ser Thr Ile
13/201

| | | |
|---|-----|---------|
| 260 | 265 | 270 |
| Val Lys Glu Arg Gly Thr Val Tyr Phe Lys Glu Gly Lys Tyr Lys Gln | | |
| 275 | 280 | 285 |
| Ala Leu Leu Gln Tyr Lys Lys Ile Val Ser Trp Leu Glu Tyr Glu Ser | | |
| 290 | 295 | 300 |
| Ser Phe Ser Asn Glu Glu Ala Gln Lys Ala Gln Ala Leu Arg Leu Ala | | |
| 305 | 310 | 315 320 |
| Ser His Leu Asn Leu Ala Met Cys His Leu Lys Leu Gln Ala Phe Ser | | |
| 325 | 330 | 335 |
| Ala Ala Ile Glu Ser Cys Asn Lys Ala Leu Glu Leu Asp Ser Asn Asn | | |
| 340 | 345 | 350 |
| Glu Lys Gly Leu Phe Arg Arg Gly Glu Ala His Leu Ala Val Asn Asp | | |
| 355 | 360 | 365 |
| Phe Glu Leu Ala Arg Ala Asp Phe Gln Lys Val Leu Gln Leu Tyr Pro | | |
| 370 | 375 | 380 |
| Asn Asn Lys Ala Ala Lys Thr Gln Leu Ala Val Cys Gln Gln Arg Ile | | |
| 385 | 390 | 395 400 |
| Arg Arg Gln Leu Ala Arg Glu Lys Lys Leu Tyr Ala Asn Met Phe Glu | | |
| 405 | 410 | 415 |
| Arg Leu Ala Glu Glu Glu Asn Lys Ala Lys Ala Glu Ala Ser Ser Gly | | |
| 420 | 425 | 430 |
| Asp His Pro Thr Asp Thr Glu Met Lys Glu Glu Gln Lys Ser Asn Thr | | |
| 435 | 440 | 445 |
| Ala Gly Ser Gln Ser Gln Val Glu Thr Glu Ala | | |
| 450 | 455 | |

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| Met | |
| 1 | |
| gcg gcg gtg aag acc ctg aac ccc aag gcc gag gtg gcc cga gcg cag | 106 |
| Ala Ala Val Lys Thr Leu Asn Pro Lys Ala Glu Val Ala Arg Ala Gln | |
| 5 10 15 | |
| gcg gcg ctg gcg gtc aac atc agc gca gcg cgg ggt ctg cag gac gtg | 154 |
| Ala Ala Leu Ala Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp Val | |
| 20 25 30 | |
| cta agg acc aac ctg ggg ccc aag ggc acc atg aag atg ctc gtt tct | 202 |
| Leu Arg Thr Asn Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val Ser | |
| 35 40 45 | |
| ggc gct gga gac atc aaa ctt act aaa gac ggc aat gtg ctg ctt cac | 250 |
| Gly Ala Gly Asp Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu His | |
| 50 55 60 65 | |
| gaa atg caa att caa cac cca aca gct tcc tta ata gca aag gta gca | 298 |
| Glu Met Gln Ile Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val Ala | |
| 70 75 80 | |
| aca gcc cag gat gat ata act ggt gat ggt acg act tct aat gtc cta | 346 |
| Thr Ala Gln Asp Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val Leu | |
| 85 90 95 | |
| atc att gga gag ctg ctg aaa cag gcg gat ctc tac att tct gaa ggc | 394 |
| Ile Ile Gly Glu Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu Gly | |
| 100 105 110 | |
| ctt cat cct aga ata atc act gaa gga ttt gaa gct gca aag gaa aag | 442 |
| Leu His Pro Arg Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu Lys | |
| 115 120 125 | |
| gcc ctt cag ttt ttg gaa gaa gtc aaa gta agc aga gag atg gac agg | 490 |
| Ala Leu Gln Phe Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp Arg | |

| 130 | 135 | 140 | 145 | |
|---|-----|-----|-----|------|
| gaa aca ctt ata gat gtg gcc aga aca tct ctt cgt act aaa gtt cat | | | | 538 |
| Glu Thr Leu Ile Asp Val Ala Arg Thr Ser Leu Arg Thr Lys Val His | | | | |
| | 150 | 155 | 160 | |
| gct gaa ctt gca gat gtc tta aca gag gct gta gtg gac tcc att ttg | | | | 586 |
| Ala Glu Leu Ala Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile Leu | | | | |
| | 165 | 170 | 175 | |
| gcc att aaa aag caa gat gaa cct att gat ctc ttc atg att gag atc | | | | 634 |
| Ala Ile Lys Lys Gln Asp Glu Pro Ile Asp Leu Phe Met Ile Glu Ile | | | | |
| | 180 | 185 | 190 | |
| atg gag atg aaa cat aaa tct gaa act gat aca agc tta atc aga ggg | | | | 682 |
| Met Glu Met Lys His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg Gly | | | | |
| | 195 | 200 | 205 | |
| ctt gtt ttg gac cac gga gca cgg cat cct gat atg aag aaa agg gtg | | | | 730 |
| Leu Val Leu Asp His Gly Ala Arg His Pro Asp Met Lys Lys Arg Val | | | | |
| | 210 | 215 | 220 | 225 |
| gag gat gca tac atc ctc act tgt aac gtg tca tta gag tat gag aaa | | | | 778 |
| Glu Asp Ala Tyr Ile Leu Thr Cys Asn Val Ser Leu Glu Tyr Glu Lys | | | | |
| | 230 | 235 | 240 | |
| aca gaa gtg aat tct ggc ttt ttt tac aag agt gca gaa gag aga gaa | | | | 826 |
| Thr Glu Val Asn Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg Glu | | | | |
| | 245 | 250 | 255 | |
| aaa ctc gtg aaa gct gaa aga aaa ttc att gaa gat agg gtt aaa aaa | | | | 874 |
| Lys Leu Val Lys Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys Lys | | | | |
| | 260 | 265 | 270 | |
| ata ata gaa ctg aaa agg aaa gtc tgt ggc gat tca gat aaa gga ttt | | | | 922 |
| Ile Ile Glu Leu Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly Phe | | | | |
| | 275 | 280 | 285 | |
| gtt gtt att aat caa aag gga att gac ccc ttt tcc tta gat gct ctt | | | | 970 |
| Val Val Ile Asn Gln Lys Gly Ile Asp Pro Phe Ser Leu Asp Ala Leu | | | | |
| | 290 | 295 | 300 | 305 |
| tca aaa gaa ggc ata gtc gct ctg cgc aga gct aaa agg aga aat atg | | | | 1018 |
| Ser Lys Glu Gly Ile Val Ala Leu Arg Arg Ala Lys Arg Arg Asn Met | | | | |
| | 310 | 315 | 320 | |
| gag agg ctg act ctt gct tgt ggt ggg gta gcc ctg aat tct ttt gac | | | | 1066 |
| Glu Arg Leu Thr Leu Ala Cys Gly Gly Val Ala Leu Asn Ser Phe Asp | | | | |
| | 325 | 330 | 335 | |

| | |
|---|------|
| gac cta agt cct gac tgc ttg gga cat gca gga ctt gta tat gag tat Asp Leu Ser Pro Asp Cys Leu Gly His Ala Gly Leu Val Tyr Glu Tyr 340 345 350 | 1114 |
| aca ttg gga gaa gag aag ttt acc ttt att gag aaa tgt aac aac cct Thr Leu Gly Glu Glu Lys Phe Thr Phe Ile Glu Lys Cys Asn Asn Pro 355 360 365 | 1162 |
| cgt tct gtc aca tta ttg atc aaa gga cca aat aag cac aca ctc act Arg Ser Val Thr Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu Thr 370 375 380 385 | 1210 |
| cag atc aaa gat gca gtg agg gac ggc ttg agg gct gtc aaa aat gct Gln Ile Lys Asp Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn Ala 390 395 400 | 1258 |
| att gat gat ggc tgt gtg gtt cca ggt gct ggt gcc gtg gaa gtg gca Ile Asp Asp Gly Cys Val Val Pro Gly Ala Gly Ala Val Glu Val Ala 405 410 415 | 1306 |
| atg gca gaa gcc ctg att aaa cat aag ccc agt gta aag ggc agg gca Met Ala Glu Ala Leu Ile Lys His Lys Pro Ser Val Lys Gly Arg Ala 420 425 430 | 1354 |
| cag ctt gga gtc caa gca ttt gct gat gca ttg ctc att att ccc aag Gln Leu Gly Val Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro Lys 435 440 445 | 1402 |
| gtt ctt gct cag aac tct ggt ttt gac ctt cag gaa aca tta gtt aaa Val Leu Ala Gln Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val Lys 450 455 460 465 | 1450 |
| att caa gca gaa cat tca gaa tca ggt cag ctt gtg ggt gtg gac ctg Ile Gln Ala Glu His Ser Glu Ser Gly Gln Leu Val Gly Val Asp Leu 470 475 480 | 1498 |
| aac aca ggt gag cca atg gtg gca gca gaa gta ggc gta tgg gat aac Asn Thr Gly Glu Pro Met Val Ala Ala Glu Val Gly Val Trp Asp Asn 485 490 495 | 1546 |
| tat tgt gta aag aaa cag ctt ctt cac tcc tgc act gtg att gcc acc Tyr Cys Val Lys Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala Thr 500 505 510 | 1594 |
| aac att ctc ttg gtt gat gag atc atg cga gct gga atg tct tct ctg Asn Ile Leu Leu Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser Leu 515 520 525 | 1642 |
| aaa ggt tga attgaagctt cctctgtatc tgaatcttga agactgcaaa Lys Gly | 1691 |

530

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gtgatcctga ggattacagc tgtggaatTT ttgtccaagc ttcaaataat tttgaaagaa 1751
attttcccat atgaaaaaag gagagaacac tggcatctgt tgaaatttgg aagttctgaa 1811
attatagtat ttttaaaaat tgcactgaag tgtatacaca taaagcaggt cttttatcca 1871
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gttacttacc ttgttattaa atatttcttg aaaagcaaat tttaatgggt aattttatgt 1991
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Met Ala Ala Val Lys Thr Leu Asn Pro Lys Ala Glu Val Ala Arg Ala
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Gln Ala Ala Leu Ala Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp
          20           25           30

```

```

Val Leu Arg Thr Asn Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val
35           40           45

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Ser Gly Ala Gly Asp Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu
50 55 60

His Glu Met Gln Ile Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val
65 70 75 80

Ala Thr Ala Gln Asp Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val
85 90 95

Leu Ile Ile Gly Glu Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu
100 105 110

Gly Leu His Pro Arg Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu
115 120 125

Lys Ala Leu Gln Phe Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp
130 135 140

Arg Glu Thr Leu Ile Asp Val Ala Arg Thr Ser Leu Arg Thr Lys Val
145 150 155 160

His Ala Glu Leu Ala Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile
165 170 175

Leu Ala Ile Lys Lys Gln Asp Glu Pro Ile Asp Leu Phe Met Ile Glu
180 185 190

Ile Met Glu Met Lys His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg
195 200 205

Gly Leu Val Leu Asp His Gly Ala Arg His Pro Asp Met Lys Lys Arg
210 215 220

Val Glu Asp Ala Tyr Ile Leu Thr Cys Asn Val Ser Leu Glu Tyr Glu
225 230 235 240

Lys Thr Glu Val Asn Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg
245 250 255

Glu Lys Leu Val Lys Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys
260 265 270

Lys Ile Ile Glu Leu Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly
275 280 285

Phe Val Val Ile Asn Gln Lys Gly Ile Asp Pro Phe Ser Leu Asp Ala
290 295 300

Leu Ser Lys Glu Gly Ile Val Ala Leu Arg Arg Ala Lys Arg Arg Asn
305 310 315 320

Met Glu Arg Leu Thr Leu Ala Cys Gly Gly Val Ala Leu Asn Ser Phe
325 330 335

Asp Asp Leu Ser Pro Asp Cys Leu Gly His Ala Gly Leu Val Tyr Glu
340 345 350

Tyr Thr Leu Gly Glu Glu Lys Phe Thr Phe Ile Glu Lys Cys Asn Asn
355 360 365

Pro Arg Ser Val Thr Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu
370 375 380

Thr Gln Ile Lys Asp Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn
385 390 395 400

Ala Ile Asp Asp Gly Cys Val Val Pro Gly Ala Gly Ala Val Glu Val
405 410 415

Ala Met Ala Glu Ala Leu Ile Lys His Lys Pro Ser Val Lys Gly Arg
420 425 430

Ala Gln Leu Gly Val Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro
435 440 445

Lys Val Leu Ala Gln Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val
 450 455 460

Lys Ile Gln Ala Glu His Ser Glu Ser Gly Gln Leu Val Gly Val Asp
 465 470 475 480

Leu Asn Thr Gly Glu Pro Met Val Ala Ala Glu Val Gly Val Trp Asp
 485 490 495

Asn Tyr Cys Val Lys Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala
 500 505 510

Thr Asn Ile Leu Leu Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser
 515 520 525

Leu Lys Gly
 530

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 <222> (230).. (1486)
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 cccagcccga cccaggccca ccgtggtgca cgcaaaccac ttcctggcc atg cgc tcc 238
 Met Arg Ser
 1

ctc ctg ctt ctc agc gcc ttc tgc ctc ctg gag gcg gcc ctg gcc gcc 286
 Leu Leu Leu Leu Ser Ala Phe Cys Leu Leu Glu Ala Ala Leu Ala Ala
 5 10 15

| | |
|---|-----|
| gag gtg aag aaa cct gca gcc gca gca gct cct ggc act gcg gag aag Glu Val Lys Lys Pro Ala Ala Ala Ala Pro Gly Thr Ala Glu Lys 20 25 30 35 | 334 |
| ttg agc ccc aag gcg gcc acg ctt gcc gag cgc agc gcc ggc ctg gcc Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala Gly Leu Ala 40 45 50 | 382 |
| ttc agc ttg tac cag gcc atg gcc aag gac cag gca gtg gag aac atc Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val Glu Asn Ile 55 60 65 | 430 |
| ctg gtg tca ccc gtg gtg gtg gcc tcg tcg cta ggg ctc gtg tcg ctg Leu Val Ser Pro Val Val Val Ala Ser Ser Leu Gly Leu Val Ser Leu 70 75 80 | 478 |
| ggc ggc aag gcg acc acg gcg tcg cag gcc aag gca gtg ctg agc gcc Gly Gly Lys Ala Thr Thr Ala Ser Gln Ala Lys Ala Val Leu Ser Ala 85 90 95 | 526 |
| gag cag ctg cgc gac gag gag gtg cac gcc ggc ctg ggc gag ctg ctg Glu Gln Leu Arg Asp Glu Glu Val His Ala Gly Leu Gly Glu Leu Leu 100 105 110 115 | 574 |
| cgc tca ctc agc aac tcc acg gcg cgc aac gtg acc tgg aag ctg ggc Arg Ser Leu Ser Asn Ser Thr Ala Arg Asn Val Thr Trp Lys Leu Gly 120 125 130 | 622 |
| agc cga ctg tac gga ccc agc tca gtg agc ttc gct gat gac ttc gtg Ser Arg Leu Tyr Gly Pro Ser Ser Val Ser Phe Ala Asp Asp Phe Val 135 140 145 | 670 |
| cgc agc agc aag cag cac tac aac tgc gag cac tcc aag atc aac ttc Arg Ser Ser Lys Gln His Tyr Asn Cys Glu His Ser Lys Ile Asn Phe 150 155 160 | 718 |
| cgc gac aag cgc agc gcg ctg cag tcc atc aac gag tgg gcc gcg cag Arg Asp Lys Arg Ser Ala Leu Gln Ser Ile Asn Glu Trp Ala Ala Gln 165 170 175 | 766 |
| acc acc gac ggc aag ctg ccc gag gtc acc aag gac gtg gag cgc acg Thr Thr Asp Gly Lys Leu Pro Glu Val Thr Lys Asp Val Glu Arg Thr 180 185 190 195 | 814 |
| gac ggc gcc ctg cta gtc aac gcc atg ttc ttc aag cca cac tgg gat Asp Gly Ala Leu Leu Val Asn Ala Met Phe Phe Lys Pro His Trp Asp 200 205 210 | 862 |
| gag aaa ttc cac cac aag atg gtg gac aac cgt ggc ttc atg gtg act 22/201 | 910 |

| | |
|---|------|
| Glu Lys Phe His His Lys Met Val Asp Asn Arg Gly Phe Met Val Thr | |
| 215 | 225 |
| cgg tcc tat acc gtg ggt gtc atg atg atg cac cgg aca ggc ctc tac | 958 |
| Arg Ser Tyr Thr Val Gly Val Met Met Met His Arg Thr Gly Leu Tyr | |
| 230 | 240 |
| aac tac tac gac gac gag aag gaa aag ctg caa atc gtg gag atg ccc | 1006 |
| Asn Tyr Tyr Asp Asp Glu Lys Glu Lys Leu Gln Ile Val Glu Met Pro | |
| 245 | 255 |
| ctg gcc cac aag ctc tcc agc ctc atc atc ctc atg ccc cat cac gtg | 1054 |
| Leu Ala His Lys Leu Ser Ser Leu Ile Ile Leu Met Pro His His Val | |
| 260 | 270 |
| gag cct ctc gag cgc ctt gaa aag ctg cta acc aaa gag cag ctg aag | 1102 |
| Glu Pro Leu Glu Arg Leu Glu Lys Leu Leu Thr Lys Glu Gln Leu Lys | |
| 280 | 290 |
| atc tgg atg ggg aag atg cag aag aag gct gtt gcc atc tcc ttg ccc | 1150 |
| Ile Trp Met Gly Lys Met Gln Lys Lys Ala Val Ala Ile Ser Leu Pro | |
| 295 | 305 |
| aag ggt gtg gtg gag gtg acc cat gac ctg cag aaa cac ctg gct ggg | 1198 |
| Lys Gly Val Val Glu Val Thr His Asp Leu Gln Lys His Leu Ala Gly | |
| 310 | 320 |
| ctg ggc ctg act gag gcc att gac aag aac aag gcc gac ttg tca cgc | 1246 |
| Leu Gly Leu Thr Glu Ala Ile Asp Lys Asn Lys Ala Asp Leu Ser Arg | |
| 325 | 335 |
| atg tca ggc aag aag gac ctg tac ctg gcc agc gtg ttc cac gcc acc | 1294 |
| Met Ser Gly Lys Lys Asp Leu Tyr Leu Ala Ser Val Phe His Ala Thr | |
| 340 | 350 |
| gcc ttt gag ttg gac aca gat ggc aac ccc ttt gac cag gac atc tac | 1342 |
| Ala Phe Glu Leu Asp Thr Asp Gly Asn Pro Phe Asp Gln Asp Ile Tyr | |
| 360 | 370 |
| ggg cgc gag gag ctg cgc agc ccc aag ctg ttc tac gcc gac cac ccc | 1390 |
| Gly Arg Glu Glu Leu Arg Ser Pro Lys Leu Phe Tyr Ala Asp His Pro | |
| 375 | 385 |
| ttc atc ttc cta gtg cgg gac acc caa agc ggc tcc ctg cta ttc att | 1438 |
| Phe Ile Phe Leu Val Arg Asp Thr Gln Ser Gly Ser Leu Leu Phe Ile | |
| 390 | 400 |
| ggg cgc ctg gtc cgg cct aag ggt gac aag atg cga gac gag tta tag | 1486 |
| Gly Arg Leu Val Arg Pro Lys Gly Asp Lys Met Arg Asp Glu Leu | |
| 405 | 415 |

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 ttcaaagata gggaggggaag ggggaacatg agcctttgtt gctatcaatc caagaactta 2146
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 aa 2208

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 <213> Homo sapiens

<400> 10

Met Arg Ser Leu Leu Leu Ser Ala Phe Cys Leu Leu Glu Ala Ala
 1 5 10 15

Leu Ala Ala Glu Val Lys Lys Pro Ala Ala Ala Ala Ala Pro Gly Thr
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Ala Glu Lys Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala
 35 40 45

Gly Leu Ala Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val
 50 55 60

Glu Asn Ile Leu Val Ser Pro Val Val Val Ala Ser Ser Leu Gly Leu
65 70 75 80

Val Ser Leu Gly Gly Lys Ala Thr Thr Ala Ser Gln Ala Lys Ala Val
85 90 95

Leu Ser Ala Glu Gln Leu Arg Asp Glu Glu Val His Ala Gly Leu Gly
100 105 110

Glu Leu Leu Arg Ser Leu Ser Asn Ser Thr Ala Arg Asn Val Thr Trp
115 120 125

Lys Leu Gly Ser Arg Leu Tyr Gly Pro Ser Ser Val Ser Phe Ala Asp
130 135 140

Asp Phe Val Arg Ser Ser Lys Gln His Tyr Asn Cys Glu His Ser Lys
145 150 155 160

Ile Asn Phe Arg Asp Lys Arg Ser Ala Leu Gln Ser Ile Asn Glu Trp
165 170 175

Ala Ala Gln Thr Thr Asp Gly Lys Leu Pro Glu Val Thr Lys Asp Val
180 185 190

Glu Arg Thr Asp Gly Ala Leu Leu Val Asn Ala Met Phe Phe Lys Pro
195 200 205

His Trp Asp Glu Lys Phe His His Lys Met Val Asp Asn Arg Gly Phe
210 215 220

Met Val Thr Arg Ser Tyr Thr Val Gly Val Met Met Met His Arg Thr
225 230 235 240

Gly Leu Tyr Asn Tyr Tyr Asp Asp Glu Lys Glu Lys Leu Gln Ile Val
245 250 255

Glu Met Pro Leu Ala His Lys Leu Ser Ser Leu Ile Ile Leu Met Pro
25/201

260

265

270

His His Val Glu Pro Leu Glu Arg Leu Glu Lys Leu Leu Thr Lys Glu
 275 280 285

Gln Leu Lys Ile Trp Met Gly Lys Met Gln Lys Lys Ala Val Ala Ile
 290 295 300

Ser Leu Pro Lys Gly Val Val Glu Val Thr His Asp Leu Gln Lys His
 305 310 315 320

Leu Ala Gly Leu Gly Leu Thr Glu Ala Ile Asp Lys Asn Lys Ala Asp
 325 330 335

Leu Ser Arg Met Ser Gly Lys Lys Asp Leu Tyr Leu Ala Ser Val Phe
 340 345 350

His Ala Thr Ala Phe Glu Leu Asp Thr Asp Gly Asn Pro Phe Asp Gln
 355 360 365

Asp Ile Tyr Gly Arg Glu Glu Leu Arg Ser Pro Lys Leu Phe Tyr Ala
 370 375 380

Asp His Pro Phe Ile Phe Leu Val Arg Asp Thr Gln Ser Gly Ser Leu
 385 390 395 400

Leu Phe Ile Gly Arg Leu Val Arg Pro Lys Gly Asp Lys Met Arg Asp
 405 410 415

Glu Leu

<210> 11
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<223>

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| ggcacgagga aggtttttgc tgcgccaacg cagtgaccga aggctccgct cacgcccggc | 60 |
| ctgatactgc ctgaag atg gtg cca ctg gtg gct gtg gta tca ggg ccc cgt | 112 |
| Met Val Pro Leu Val Ala Val Val Ser Gly Pro Arg | |
| 1 5 10 | |
| gcc cag ctc ttt gcc tgc ctg ctc agg ctg ggc act cag cag gtc ggc | 160 |
| Ala Gln Leu Phe Ala Cys Leu Leu Arg Leu Gly Thr Gln Gln Val Gly | |
| 15 20 25 | |
| ccc ctt cag ctg cac acc ggg gcc agc cat gcg gcc agg aac cat tat | 208 |
| Pro Leu Gln Leu His Thr Gly Ala Ser His Ala Ala Arg Asn His Tyr | |
| 30 35 40 | |
| gag gtg ctg gtg ctg ggt ggg ggc agt ggc gga atc acc atg gct gcc | 256 |
| Glu Val Leu Val Leu Gly Gly Gly Ser Gly Gly Ile Thr Met Ala Ala | |
| 45 50 55 60 | |
| cgc atg aag agg aaa gtg ggt gca gag aat gtg gcc att gtt gag ccc | 304 |
| Arg Met Lys Arg Lys Val Gly Ala Glu Asn Val Ala Ile Val Glu Pro | |
| 65 70 75 | |
| agt gag aga cat ttc tac cag cca atc tgg aca ctg gtg ggt gct ggt | 352 |
| Ser Glu Arg His Phe Tyr Gln Pro Ile Trp Thr Leu Val Gly Ala Gly | |
| 80 85 90 | |
| gcc aaa caa ttg tcc tca tct ggt cgt ccc acg gca agt gtg att cca | 400 |
| Ala Lys Gln Leu Ser Ser Ser Gly Arg Pro Thr Ala Ser Val Ile Pro | |
| 95 100 105 | |
| tct ggt gta gaa tgg atc aaa gct aga gtg act gag ttg aac cca gac | 448 |
| Ser Gly Val Glu Trp Ile Lys Ala Arg Val Thr Glu Leu Asn Pro Asp | |
| 110 115 120 | |
| aag aac tgc att cac aca gat gac gac gag aag atc tcc tac cga tat | 496 |
| Lys Asn Cys Ile His Thr Asp Asp Asp Glu Lys Ile Ser Tyr Arg Tyr | |
| 125 130 135 140 | |
| ctt att att gct ctc gga atc cag ctg gac tat gag aag att aaa ggc | 544 |
| Leu Ile Ile Ala Leu Gly Ile Gln Leu Asp Tyr Glu Lys Ile Lys Gly | |
| 145 150 155 | |
| cta cct gaa ggt ttc gct cat ccc aaa ata ggg tcg aat tat tca gtt | 592 |
| Leu Pro Glu Gly Phe Ala His Pro Lys Ile Gly Ser Asn Tyr Ser Val | |
| 160 165 170 | |

| | |
|---|------|
| aag act gta gag aag aca tgg aaa gct ctg cag gac ttc aaa gag ggc Lys Thr Val Glu Lys Thr Trp Lys Ala Leu Gln Asp Phe Lys Glu Gly 175 180 185 | 640 |
| aat gcc atc ttc acc ttc cca aat act cca gtg aag tgt gct gga gcc Asn Ala Ile Phe Thr Phe Pro Asn Thr Pro Val Lys Cys Ala Gly Ala 190 195 200 | 688 |
| cct cag aag atc atg tac tta tca gaa gcc tac ttc agg aag aca ggg Pro Gln Lys Ile Met Tyr Leu Ser Glu Ala Tyr Phe Arg Lys Thr Gly 205 210 215 220 | 736 |
| aag cga tcc aag gcc aat atc att ttc aac act tct ctt gga gcc att Lys Arg Ser Lys Ala Asn Ile Ile Phe Asn Thr Ser Leu Gly Ala Ile 225 230 235 | 784 |
| ttc ggg gtt aag aag tat gca gat gcc ctg cag gag atc atc cag gag Phe Gly Val Lys Lys Tyr Ala Asp Ala Leu Gln Glu Ile Ile Gln Glu 240 245 250 | 832 |
| cgg aac ctc act gtt aac tac aag aaa aac ctc att gaa gtc cga gcc Arg Asn Leu Thr Val Asn Tyr Lys Lys Asn Leu Ile Glu Val Arg Ala 255 260 265 | 880 |
| gat aaa caa gag gct gta ttt gag aac ctg gac aaa cca gga gag acc Asp Lys Gln Glu Ala Val Phe Glu Asn Leu Asp Lys Pro Gly Glu Thr 270 275 280 | 928 |
| caa gtg att tca tat gaa atg ctt cat gtc aca cct cca atg agc cca Gln Val Ile Ser Tyr Glu Met Leu His Val Thr Pro Pro Met Ser Pro 285 290 295 300 | 976 |
| cca gat gtc ctc aag acc agt cct gtg gct gat gct gct ggt tgg gtg Pro Asp Val Leu Lys Thr Ser Pro Val Ala Asp Ala Ala Gly Trp Val 305 310 315 | 1024 |
| gat gtg gat aaa gaa act ctg caa cac agg agg tac cca aat gtg ttt Asp Val Asp Lys Glu Thr Leu Gln His Arg Arg Tyr Pro Asn Val Phe 320 325 330 | 1072 |
| ggg att ggg gac tgc acc aac ctt cct acg tca aag acc gct gct gca Gly Ile Gly Asp Cys Thr Asn Leu Pro Thr Ser Lys Thr Ala Ala Ala 335 340 345 | 1120 |
| gta gct gcc cag tca gga ata ctt gat agg aca att tct gta att atg Val Ala Ala Gln Ser Gly Ile Leu Asp Arg Thr Ile Ser Val Ile Met 350 355 360 | 1168 |
| aag aat caa aca cca aca aag aag tat gat ggc tac aca tca tgt cca Lys Asn Gln Thr Pro Thr Lys Lys Tyr Asp Gly Tyr Thr Ser Cys Pro 28/201 | 1216 |

| | | | | |
|---|-----|-----|-----|------|
| 365 | 370 | 375 | 380 | |
| ctg gtg acc ggc tac aac cgt gtg att ctt gct gag ttt gac tac aaa | | | | 1264 |
| Leu Val Thr Gly Tyr Asn Arg Val Ile Leu Ala Glu Phe Asp Tyr Lys | | | | |
| | 385 | 390 | 395 | |
| gca gag ccg cta gaa acc ttc ccc ttt gat caa agc aaa gag cgc ctt | | | | 1312 |
| Ala Glu Pro Leu Glu Thr Phe Pro Phe Asp Gln Ser Lys Glu Arg Leu | | | | |
| | 400 | 405 | 410 | |
| tcc atg tat ctc atg aaa gct gac ctg atg cct ttc ctg tat tgg aat | | | | 1360 |
| Ser Met Tyr Leu Met Lys Ala Asp Leu Met Pro Phe Leu Tyr Trp Asn | | | | |
| | 415 | 420 | 425 | |
| atg atg cta agg ggt tac tgg gga gga cca gcg ttt ctg cgc aag ttg | | | | 1408 |
| Met Met Leu Arg Gly Tyr Trp Gly Gly Pro Ala Phe Leu Arg Lys Leu | | | | |
| | 430 | 435 | 440 | |
| ttt cat cta ggt atg agt taa ggatggctca gcacttgctc atcttggatg | | | | 1459 |
| Phe His Leu Gly Met Ser | | | | |
| | 445 | 450 | | |
| gcttctgggc caaaactgca gtcactgaat gaccaagagc agcacgaagg acttgaacc | | | | 1519 |
| tatccttgta aagagttcct tgatgggtaa tggtagacaa atgcctccct tttcagtacc | | | | 1579 |
| tttgaacagc aaccatgtgg gctactcatg atgggcttga ttctttggga ataataaaat | | | | 1639 |
| gaaataatac ttttattttc tgaataaaag tttgtcactg aaaaaaaaaa a | | | | 1690 |

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<400> 12

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| Met Val Pro Leu Val Ala Val Val Ser Gly Pro Arg Ala Gln Leu Phe |
| 1 5 10 15 |

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| Ala Cys Leu Leu Arg Leu Gly Thr Gln Gln Val Gly Pro Leu Gln Leu |
| 20 25 30 |

| |
|---|
| His Thr Gly Ala Ser His Ala Ala Arg Asn His Tyr Glu Val Leu Val |
| 35 40 45 |

Leu Gly Gly Gly Ser Gly Gly Ile Thr Met Ala Ala Arg Met Lys Arg
50 55 60

Lys Val Gly Ala Glu Asn Val Ala Ile Val Glu Pro Ser Glu Arg His
65 70 75 80

Phe Tyr Gln Pro Ile Trp Thr Leu Val Gly Ala Gly Ala Lys Gln Leu
85 90 95

Ser Ser Ser Gly Arg Pro Thr Ala Ser Val Ile Pro Ser Gly Val Glu
100 105 110

Trp Ile Lys Ala Arg Val Thr Glu Leu Asn Pro Asp Lys Asn Cys Ile
115 120 125

His Thr Asp Asp Asp Glu Lys Ile Ser Tyr Arg Tyr Leu Ile Ile Ala
130 135 140

Leu Gly Ile Gln Leu Asp Tyr Glu Lys Ile Lys Gly Leu Pro Glu Gly
145 150 155 160

Phe Ala His Pro Lys Ile Gly Ser Asn Tyr Ser Val Lys Thr Val Glu
165 170 175

Lys Thr Trp Lys Ala Leu Gln Asp Phe Lys Glu Gly Asn Ala Ile Phe
180 185 190

Thr Phe Pro Asn Thr Pro Val Lys Cys Ala Gly Ala Pro Gln Lys Ile
195 200 205

Met Tyr Leu Ser Glu Ala Tyr Phe Arg Lys Thr Gly Lys Arg Ser Lys
210 215 220

Ala Asn Ile Ile Phe Asn Thr Ser Leu Gly Ala Ile Phe Gly Val Lys
225 230 235 240

Lys Tyr Ala Asp Ala Leu Gln Glu Ile Ile Gln Glu Arg Asn Leu Thr
245 250 255

Val Asn Tyr Lys Lys Asn Leu Ile Glu Val Arg Ala Asp Lys Gln Glu
260 265 270

Ala Val Phe Glu Asn Leu Asp Lys Pro Gly Glu Thr Gln Val Ile Ser
275 280 285

Tyr Glu Met Leu His Val Thr Pro Pro Met Ser Pro Pro Asp Val Leu
290 295 300

Lys Thr Ser Pro Val Ala Asp Ala Ala Gly Trp Val Asp Val Asp Lys
305 310 315 320

Glu Thr Leu Gln His Arg Arg Tyr Pro Asn Val Phe Gly Ile Gly Asp
325 330 335

Cys Thr Asn Leu Pro Thr Ser Lys Thr Ala Ala Ala Val Ala Ala Gln
340 345 350

Ser Gly Ile Leu Asp Arg Thr Ile Ser Val Ile Met Lys Asn Gln Thr
355 360 365

Pro Thr Lys Lys Tyr Asp Gly Tyr Thr Ser Cys Pro Leu Val Thr Gly
370 375 380

Tyr Asn Arg Val Ile Leu Ala Glu Phe Asp Tyr Lys Ala Glu Pro Leu
385 390 395 400

Glu Thr Phe Pro Phe Asp Gln Ser Lys Glu Arg Leu Ser Met Tyr Leu
405 410 415

Met Lys Ala Asp Leu Met Pro Phe Leu Tyr Trp Asn Met Met Leu Arg
420 425 430

Gly Tyr Trp Gly Gly Pro Ala Phe Leu Arg Lys Leu Phe His Leu Gly
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Met Ser
450

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Met Gly Ser
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ccg ctg agg ttc gac ggg cgg gtg gta ctg gtc acc ggc gcg ggg gca 105
Pro Leu Arg Phe Asp Gly Arg Val Val Leu Val Thr Gly Ala Gly Ala
5 10 15

gga ttg ggc cga gcc tat gcc ctg gct ttt gca gaa aga gga gcg tta 153
Gly Leu Gly Arg Ala Tyr Ala Leu Ala Phe Ala Glu Arg Gly Ala Leu
20 25 30 35

gtt gtt gtg aat gat ttg gga ggg gac ttc aaa gga gtt ggt aaa ggc 201
Val Val Val Asn Asp Leu Gly Gly Asp Phe Lys Gly Val Gly Lys Gly
40 45 50

tcc tta gct gct gat aag gtt gtt gaa gaa ata aga agg aga ggt gga 249
Ser Leu Ala Ala Asp Lys Val Val Glu Glu Ile Arg Arg Arg Gly Gly
55 60 65

aaa gca gtg gcc aac tat gat tca gtg gaa gaa gga gag aag gtt gtg 297
Lys Ala Val Ala Asn Tyr Asp Ser Val Glu Glu Gly Glu Lys Val Val
70 75 80

aag aca gcc ctg gat gct ttt gga aga ata gat gtt gtg gtc aac aat 345
Lys Thr Ala Leu Asp Ala Phe Gly Arg Ile Asp Val Val Val Asn Asn
85 90 95

gct gga att ctg agg gat cgt tcc ttt gct agg ata agt gat gaa gac 393
Ala Gly Ile Leu Arg Asp Arg Ser Phe Ala Arg Ile Ser Asp Glu Asp
100 105 110 115

tgg gat ata atc cac aga gtt cat ttg cgg ggt tca ttc caa gtg aca 441
Trp Asp Ile Ile His Arg Val His Leu Arg Gly Ser Phe Gln Val Thr
120 125 130

| | |
|---|------|
| cgg gca gca tgg gaa cac atg aag aaa cag aag tat gga agg att att | 489 |
| Arg Ala Ala Trp Glu His Met Lys Lys Gln Lys Tyr Gly Arg Ile Ile | |
| 135 140 145 | |
| atg act tca tca gct tca gga ata tat ggc aac ttt ggc cag gcc aat | 537 |
| Met Thr Ser Ser Ala Ser Gly Ile Tyr Gly Asn Phe Gly Gln Ala Asn | |
| 150 155 160 | |
| tat agt gct gca aag ttg ggt ctt ctg ggc ctt gca aat tct ctt gca | 585 |
| Tyr Ser Ala Ala Lys Leu Gly Leu Leu Gly Leu Ala Asn Ser Leu Ala | |
| 165 170 175 | |
| att gaa ggc agg aaa agc aac att cat tgt aac acc att gct cct aat | 633 |
| Ile Glu Gly Arg Lys Ser Asn Ile His Cys Asn Thr Ile Ala Pro Asn | |
| 180 185 190 195 | |
| gcg gga tca cgg atg act cag aca gtt atg cct gaa gat ctt gtg gaa | 681 |
| Ala Gly Ser Arg Met Thr Gln Thr Val Met Pro Glu Asp Leu Val Glu | |
| 200 205 210 | |
| gcc ctg aag cca gag tat gtg gca cct ctt gtc ctt tgg ctt tgt cac | 729 |
| Ala Leu Lys Pro Glu Tyr Val Ala Pro Leu Val Leu Trp Leu Cys His | |
| 215 220 225 | |
| gag agt tgt gag gag aat ggt ggc ttg ttt gag gtt gga gca gga tgg | 777 |
| Glu Ser Cys Glu Glu Asn Gly Gly Leu Phe Glu Val Gly Ala Gly Trp | |
| 230 235 240 | |
| att gga aaa tta cgc tgg gag cgg act ctt gga gct att gta aga caa | 825 |
| Ile Gly Lys Leu Arg Trp Glu Arg Thr Leu Gly Ala Ile Val Arg Gln | |
| 245 250 255 | |
| aag aat cac cca atg act cct gag gca gtc aag gct aac tgg aag aag | 873 |
| Lys Asn His Pro Met Thr Pro Glu Ala Val Lys Ala Asn Trp Lys Lys | |
| 260 265 270 275 | |
| atc tgt gac ttt gag aat gcc agc aag cct cag agt atc caa gaa tca | 921 |
| Ile Cys Asp Phe Glu Asn Ala Ser Lys Pro Gln Ser Ile Gln Glu Ser | |
| 280 285 290 | |
| act ggc agt ata att gaa gtt ctg agt aaa ata gat tca gaa gga gga | 969 |
| Thr Gly Ser Ile Ile Glu Val Leu Ser Lys Ile Asp Ser Glu Gly Gly | |
| 295 300 305 | |
| gtt tca gca aat cat act agt cgt gca acg tct aca gca aca tca gga | 1017 |
| Val Ser Ala Asn His Thr Ser Arg Ala Thr Ser Thr Ala Thr Ser Gly | |
| 310 315 320 | |
| ttt gct gga gct att ggc cag aaa ctc cct cca ttt tct tat gct tat | 1065 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Phe | Ala | Gly | Ala | Ile | Gly | Gln | Lys | Leu | Pro | Pro | Phe | Ser | Tyr | Ala | Tyr | | |
| 325 | | | | | | 330 | | | | | 335 | | | | | | |
| acg | gaa | ctg | gaa | gct | att | atg | tat | gcc | ctt | gga | gtg | gga | gcg | tca | atc | 1113 | |
| Thr | Glu | Leu | Glu | Ala | Ile | Met | Tyr | Ala | Leu | Gly | Val | Gly | Ala | Ser | Ile | | |
| 340 | | | | | 345 | | | | | 350 | | | | | 355 | | |
| aag | gat | cca | aaa | gat | ttg | aaa | ttt | att | tat | gaa | gga | agt | tct | gat | ttc | 1161 | |
| Lys | Asp | Pro | Lys | Asp | Leu | Lys | Phe | Ile | Tyr | Glu | Gly | Ser | Ser | Asp | Phe | | |
| | | | | 360 | | | | | 365 | | | | | 370 | | | |
| tcc | tgt | ttg | ccc | acc | ttc | gga | gtt | atc | ata | ggt | cag | aaa | tct | atg | atg | 1209 | |
| Ser | Cys | Leu | Pro | Thr | Phe | Gly | Val | Ile | Ile | Gly | Gln | Lys | Ser | Met | Met | | |
| | | | 375 | | | | | 380 | | | | | 385 | | | | |
| ggt | gga | gga | tta | gca | gaa | att | cct | gga | ctt | tca | atc | aac | ttt | gca | aag | 1257 | |
| Gly | Gly | Gly | Leu | Ala | Glu | Ile | Pro | Gly | Leu | Ser | Ile | Asn | Phe | Ala | Lys | | |
| | | 390 | | | | | 395 | | | | | 400 | | | | | |
| gtt | ctt | cat | gga | gag | cag | tac | tta | gag | tta | tat | aaa | cca | ctt | ccc | aga | 1305 | |
| Val | Leu | His | Gly | Glu | Gln | Tyr | Leu | Glu | Leu | Tyr | Lys | Pro | Leu | Pro | Arg | | |
| | 405 | | | | | 410 | | | | | 415 | | | | | | |
| gca | gga | aaa | tta | aaa | tgt | gaa | gca | gtt | gtt | gct | gat | gtc | cta | gat | aaa | 1353 | |
| Ala | Gly | Lys | Leu | Lys | Cys | Glu | Ala | Val | Val | Ala | Asp | Val | Leu | Asp | Lys | | |
| 420 | | | | | 425 | | | | | 430 | | | | | 435 | | |
| gga | tcc | ggt | gta | gtg | att | att | atg | gat | gtc | tat | tct | tat | tct | gag | aag | 1401 | |
| Gly | Ser | Gly | Val | Val | Ile | Ile | Met | Asp | Val | Tyr | Ser | Tyr | Ser | Glu | Lys | | |
| | | | | 440 | | | | | 445 | | | | | 450 | | | |
| gaa | ctt | ata | tgc | cac | aat | cag | ttc | tct | ctc | ttt | ctt | gtt | ggc | tct | gga | 1449 | |
| Glu | Leu | Ile | Cys | His | Asn | Gln | Phe | Ser | Leu | Phe | Leu | Val | Gly | Ser | Gly | | |
| | | 455 | | | | | 460 | | | | | | 465 | | | | |
| ggc | ttt | ggt | gga | aaa | cgg | aca | tca | gac | aaa | gtc | aag | gta | gct | gta | gcc | 1497 | |
| Gly | Phe | Gly | Gly | Lys | Arg | Thr | Ser | Asp | Lys | Val | Lys | Val | Ala | Val | Ala | | |
| | 470 | | | | | | 475 | | | | | 480 | | | | | |
| ata | cct | aat | aga | cct | cct | gat | gct | gta | ctt | aca | gat | acc | acc | tct | ctt | 1545 | |
| Ile | Pro | Asn | Arg | Pro | Pro | Asp | Ala | Val | Leu | Thr | Asp | Thr | Thr | Ser | Leu | | |
| | 485 | | | | | 490 | | | | | 495 | | | | | | |
| aat | cag | gct | gct | ttg | tac | cgc | ctc | agt | gga | gac | tgg | aat | ccc | tta | cac | 1593 | |
| Asn | Gln | Ala | Ala | Leu | Tyr | Arg | Leu | Ser | Gly | Asp | Trp | Asn | Pro | Leu | His | | |
| 500 | | | | | 505 | | | | | 510 | | | | | 515 | | |
| att | gat | cct | aac | ttt | gct | agt | cta | gca | ggt | ttt | gac | aag | ccc | ata | tta | 1641 | |
| Ile | Asp | Pro | Asn | Phe | Ala | Ser | Leu | Ala | Gly | Phe | Asp | Lys | Pro | Ile | Leu | | |
| | | | | 520 | | | | | 525 | | | | | 530 | | | |

| | |
|---|------|
| cat gga tta tgt aca ttt gga ttt tct gcc agg cgt gtg tta cag cag | 1689 |
| His Gly Leu Cys Thr Phe Gly Phe Ser Ala Arg Arg Val Leu Gln Gln | |
| 535 540 545 | |
| ttt gca gat aat gat gtg tca aga ttc aag gca att aag gct cgt ttt | 1737 |
| Phe Ala Asp Asn Asp Val Ser Arg Phe Lys Ala Ile Lys Ala Arg Phe | |
| 550 555 560 | |
| gca aaa cca gta tat cca gga caa act cta caa act gag atg tgg aag | 1785 |
| Ala Lys Pro Val Tyr Pro Gly Gln Thr Leu Gln Thr Glu Met Trp Lys | |
| 565 570 575 | |
| gaa gga aac aga att cat ttt caa acc aag gtc caa gaa act gga gac | 1833 |
| Glu Gly Asn Arg Ile His Phe Gln Thr Lys Val Gln Glu Thr Gly Asp | |
| 580 585 590 595 | |
| att gtc att tca aat gca tat gtg gat ctt gca cca aca tct ggt act | 1881 |
| Ile Val Ile Ser Asn Ala Tyr Val Asp Leu Ala Pro Thr Ser Gly Thr | |
| 600 605 610 | |
| tca gct aag aca ccc tct gag ggc ggg aag ctt cag agt acc ttt gta | 1929 |
| Ser Ala Lys Thr Pro Ser Glu Gly Gly Lys Leu Gln Ser Thr Phe Val | |
| 615 620 625 | |
| ttt gag gaa ata gga cgc cgc cta aag gat att ggg cct gag gtg gtg | 1977 |
| Phe Glu Glu Ile Gly Arg Arg Leu Lys Asp Ile Gly Pro Glu Val Val | |
| 630 635 640 | |
| aag aaa gta aat gct gta ttt gag tgg cat ata acc aaa ggc gga aat | 2025 |
| Lys Lys Val Asn Ala Val Phe Glu Trp His Ile Thr Lys Gly Gly Asn | |
| 645 650 655 | |
| att ggg gct aag tgg act att gac ctg aaa agt ggt tct gga aaa gtg | 2073 |
| Ile Gly Ala Lys Trp Thr Ile Asp Leu Lys Ser Gly Ser Gly Lys Val | |
| 660 665 670 675 | |
| tac caa ggc cct gca aaa ggt gct gct gat aca aca atc ata ctt tca | 2121 |
| Tyr Gln Gly Pro Ala Lys Gly Ala Ala Asp Thr Thr Ile Ile Leu Ser | |
| 680 685 690 | |
| gat gaa gat ttc atg gag gtg gtc ctg ggc aag ctt gac cct cag aag | 2169 |
| Asp Glu Asp Phe Met Glu Val Val Leu Gly Lys Leu Asp Pro Gln Lys | |
| 695 700 705 | |
| gca ttc ttt agt ggc agg ctg aag gcc aga ggg aac atc atg ctg agc | 2217 |
| Ala Phe Phe Ser Gly Arg Leu Lys Ala Arg Gly Asn Ile Met Leu Ser | |
| 710 715 720 | |
| cag aaa ctt cag atg att ctt aaa gac tac gcc aag ctc tga | 2259 |

Gln Lys Leu Gln Met Ile Leu Lys Asp Tyr Ala Lys Leu
725 730 735

agggcacact acactattaa taaaaatgga atcattaaat actctcttca cccaaatatg 2319
cttgattatt ctgcaaaagt gattagaact aagatgcagg ggaaattgct taacattttc 2379
agatatcaga taactgcaga ttttcatttt ctactaattt tcatgtatca ttatttttac 2439
aaggaactat atataagcta gcacatgatt atccttctgt tcttagatct gtatcttcat 2499
aataaaaaat tttgccaag tctgttttcc ttagaatttg tgatagcatt gataagttga 2559
aaggaaaatt aaatcaataa aggcctttga tacc 2593

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<211> 736
<212> PRT
<213> Homo sapiens

<400> 14

Met Gly Ser Pro Leu Arg Phe Asp Gly Arg Val Val Leu Val Thr Gly
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Gly Ala Leu Val Val Val Asn Asp Leu Gly Gly Asp Phe Lys Gly Val
35 40 45

Gly Lys Gly Ser Leu Ala Ala Asp Lys Val Val Glu Glu Ile Arg Arg
50 55 60

Arg Gly Gly Lys Ala Val Ala Asn Tyr Asp Ser Val Glu Glu Gly Glu
65 70 75 80

Lys Val Val Lys Thr Ala Leu Asp Ala Phe Gly Arg Ile Asp Val Val
85 90 95

Val Asn Asn Ala Gly Ile Leu Arg Asp Arg Ser Phe Ala Arg Ile Ser
100 105 110

Asp Glu Asp Trp Asp Ile Ile His Arg Val His Leu Arg Gly Ser Phe
115 120 125

Gln Val Thr Arg Ala Ala Trp Glu His Met Lys Lys Gln Lys Tyr Gly
130 135 140

Arg Ile Ile Met Thr Ser Ser Ala Ser Gly Ile Tyr Gly Asn Phe Gly
145 150 155 160

Gln Ala Asn Tyr Ser Ala Ala Lys Leu Gly Leu Leu Gly Leu Ala Asn
165 170 175

Ser Leu Ala Ile Glu Gly Arg Lys Ser Asn Ile His Cys Asn Thr Ile
180 185 190

Ala Pro Asn Ala Gly Ser Arg Met Thr Gln Thr Val Met Pro Glu Asp
195 200 205

Leu Val Glu Ala Leu Lys Pro Glu Tyr Val Ala Pro Leu Val Leu Trp
210 215 220

Leu Cys His Glu Ser Cys Glu Glu Asn Gly Gly Leu Phe Glu Val Gly
225 230 235 240

Ala Gly Trp Ile Gly Lys Leu Arg Trp Glu Arg Thr Leu Gly Ala Ile
245 250 255

Val Arg Gln Lys Asn His Pro Met Thr Pro Glu Ala Val Lys Ala Asn
260 265 270

Trp Lys Lys Ile Cys Asp Phe Glu Asn Ala Ser Lys Pro Gln Ser Ile
275 280 285

Gln Glu Ser Thr Gly Ser Ile Ile Glu Val Leu Ser Lys Ile Asp Ser
290 295 300

Glu Gly Gly Val Ser Ala Asn His Thr Ser Arg Ala Thr Ser Thr Ala
37/201

305 310 315 320

Tyr Ala Tyr Thr Glu Leu Glu Ala Ile Met Tyr Ala Leu Gly Val Gly
340 345 350

Ser Asp Phe Ser Cys Leu Pro Thr Phe Gly Val Ile Ile Gly Gln Lys
370 375 380

Phe Ala Lys Val Leu His Gly Glu Gln Tyr Leu Glu Leu Tyr Lys Pro
405 410 415

Leu Asp Lys Gly Ser Gly Val Val Ile Ile Met Asp Val Tyr Ser Tyr
435 440 445

Gly Ser Gly Gly Phe Gly Gly Lys Arg Thr Ser Asp Lys Val Lys Val
465 470 475 480

Thr Ser Leu Asn Gln Ala Ala Leu Tyr Arg Leu Ser Gly Asp Trp Asn
500 505 510

Pro Leu His Ile Asp Pro Asn Phe Ala Ser Leu Ala Gly Phe Asp Lys
515 520 525

Pro Ile Leu His Gly Leu Cys Thr Phe Gly Phe Ser Ala Arg Arg Val
530 535 540

Leu Gln Gln Phe Ala Asp Asn Asp Val Ser Arg Phe Lys Ala Ile Lys
545 550 555 560

Ala Arg Phe Ala Lys Pro Val Tyr Pro Gly Gln Thr Leu Gln Thr Glu
565 570 575

Met Trp Lys Glu Gly Asn Arg Ile His Phe Gln Thr Lys Val Gln Glu
580 585 590

Thr Gly Asp Ile Val Ile Ser Asn Ala Tyr Val Asp Leu Ala Pro Thr
595 600 605

Ser Gly Thr Ser Ala Lys Thr Pro Ser Glu Gly Gly Lys Leu Gln Ser
610 615 620

Thr Phe Val Phe Glu Glu Ile Gly Arg Arg Leu Lys Asp Ile Gly Pro
625 630 635 640

Glu Val Val Lys Lys Val Asn Ala Val Phe Glu Trp His Ile Thr Lys
645 650 655

Gly Gly Asn Ile Gly Ala Lys Trp Thr Ile Asp Leu Lys Ser Gly Ser
660 665 670

Gly Lys Val Tyr Gln Gly Pro Ala Lys Gly Ala Ala Asp Thr Thr Ile
675 680 685

Ile Leu Ser Asp Glu Asp Phe Met Glu Val Val Leu Gly Lys Leu Asp
690 695 700

Pro Gln Lys Ala Phe Phe Ser Gly Arg Leu Lys Ala Arg Gly Asn Ile
39/201

705

710

715

720

Met Leu Ser Gln Lys Leu Gln Met Ile Leu Lys Asp Tyr Ala Lys Leu
 725 730 735

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ct atg gag cag gtc aat gag ctg aag gag aaa ggc aac aag gcc ctg 107
 Met Glu Gln Val Asn Glu Leu Lys Glu Lys Gly Asn Lys Ala Leu
 1 5 10 15

agc gtg ggt aac atc gat gat gcc tta cag tgc tac tcc gaa gct att 155
 Ser Val Gly Asn Ile Asp Asp Ala Leu Gln Cys Tyr Ser Glu Ala Ile
 20 25 30

aag ctg gat ccc cac aac cac gtg ctg tac agc aac cgt tct gct gcc 203
 Lys Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala
 35 40 45

tat gcc aag aaa gga gac tac cag aag gct tat gag gat ggc tgc aag 251
 Tyr Ala Lys Lys Gly Asp Tyr Gln Lys Ala Tyr Glu Asp Gly Cys Lys
 50 55 60

act gtc gac cta aag cct gac tgg ggc aag ggc tat tca cga aaa gca 299
 Thr Val Asp Leu Lys Pro Asp Trp Gly Lys Gly Tyr Ser Arg Lys Ala
 65 70 75

gca gct cta gag ttc tta aac cgc ttt gaa gaa gcc aag cga acc tat 347
 Ala Ala Leu Glu Phe Leu Asn Arg Phe Glu Glu Ala Lys Arg Thr Tyr
 80 85 90 95

gag gag ggc tta aaa cac gag gca aat aac cct caa ctg aaa gag ggt 395
 Glu Glu Gly Leu Lys His Glu Ala Asn Asn Pro Gln Leu Lys Glu Gly
 100 105 110

tta cag aat atg gag gcc agg ttg gca gag aga aaa ttc atg aac cct 443
 Leu Gln Asn Met Glu Ala Arg Leu Ala Glu Arg Lys Phe Met Asn Pro
 40/201

| 115 | 120 | 125 | |
|---------------------------------|-------------------------|-------------|------|
| ttc aac atg cct aat ctg tat | cag aag ttg gag agt gat | ccc agg aca | 491 |
| Phe Asn Met Pro Asn Leu Tyr | Gln Lys Leu Glu Ser Asp | Pro Arg Thr | |
| 130 | 135 | 140 | |
| agg aca cta ctc agt gat cct acc | tac cgg gag ctg ata gag | cag cta | 539 |
| Arg Thr Leu Leu Ser Asp Pro | Thr Tyr Arg Glu Leu Ile | Glu Gln Leu | |
| 145 | 150 | 155 | |
| cga aac aag cct tct gac ctg | ggc acg aaa cta caa gat | ccc cgg atc | 587 |
| Arg Asn Lys Pro Ser Asp Leu | Gly Thr Lys Leu Gln Asp | Pro Arg Ile | |
| 160 | 165 | 170 175 | |
| atg acc act ctc agc gtc ctc | ctt ggg gtc gat ctg ggc | agt atg gat | 635 |
| Met Thr Thr Leu Ser Val Leu | Leu Gly Val Asp Leu Gly | Ser Met Asp | |
| 180 | 185 | 190 | |
| gag gag gaa gag att gca aca | cct cca cca cca ccc cct | ccc aaa aag | 683 |
| Glu Glu Glu Glu Ile Ala Thr | Pro Pro Pro Pro Pro Pro | Lys Lys | |
| 195 | 200 | 205 | |
| gag acc aag cca gag cca atg | gaa gaa gat ctt cca gag | aat aag aag | 731 |
| Glu Thr Lys Pro Glu Pro Met | Glu Glu Asp Leu Pro Glu | Asn Lys Lys | |
| 210 | 215 | 220 | |
| cag gca ctg aaa gaa aaa gag | ctg ggg aac gat gcc tac | aag aag aaa | 779 |
| Gln Ala Leu Lys Glu Lys Glu | Leu Gly Asn Asp Ala Tyr | Lys Lys Lys | |
| 225 | 230 | 235 | |
| gac ttt gac aca gcc ttg aag | cat tac gac aaa gcc aag | gag ctg gac | 827 |
| Asp Phe Asp Thr Ala Leu Lys | His Tyr Asp Lys Ala Lys | Glu Leu Asp | |
| 240 | 245 | 250 255 | |
| ccc act aac atg act tac att | acc aat caa gca gcg gta | tac ttt gaa | 875 |
| Pro Thr Asn Met Thr Tyr Ile | Thr Asn Gln Ala Ala Val | Tyr Phe Glu | |
| 260 | 265 | 270 | |
| aag ggc gac tac aat aag tgc | cgg gag ctt tgt gag aag | gcc att gaa | 923 |
| Lys Gly Asp Tyr Asn Lys Cys | Arg Glu Leu Cys Glu Lys | Ala Ile Glu | |
| 275 | 280 | 285 | |
| gtg ggg aga gaa aac cga gaa | gac tat cga cag att gcc | aaa gca tat | 971 |
| Val Gly Arg Glu Asn Arg Glu | Asp Tyr Arg Gln Ile Ala | Lys Ala Tyr | |
| 290 | 295 | 300 | |
| gct cga att ggc aac tcc tac | ttc aaa gaa gaa aag tac | aag gat gcc | 1019 |
| Ala Arg Ile Gly Asn Ser Tyr | Phe Lys Glu Glu Lys Tyr | Lys Asp Ala | |
| 305 | 310 | 315 | |

| | |
|---|------|
| atc cat ttc tat aac aag tct ctg gca gag cac cga acc cca gat gtg | 1067 |
| Ile His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val | |
| 320 325 330 335 | |
| ctc aag aaa tgc cag cag gca gag aaa atc ctg aag gag caa gag cgg | 1115 |
| Leu Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg | |
| 340 345 350 | |
| ctg gcc tac ata aac ccc gac ctg gct ttg gag gag aag aac aaa ggc | 1163 |
| Leu Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly | |
| 355 360 365 | |
| aac gag tgt ttt cag aaa ggg gac tat ccc cag gcc atg aag cat tat | 1211 |
| Asn Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr | |
| 370 375 380 | |
| aca gaa gcc atc aaa agg aac ccg aaa gat gcc aaa tta tac agc aat | 1259 |
| Thr Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn | |
| 385 390 395 | |
| cga gct gcc tgc tac acc aaa ctc ctg gag ttc cag ctg gca ctc aag | 1307 |
| Arg Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys | |
| 400 405 410 415 | |
| gac tgt gag gaa tgt atc cag ctg gag ccg acc ttc atc aag ggt tat | 1355 |
| Asp Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr | |
| 420 425 430 | |
| aca cgg aaa gcc gct gcg ctg gaa gcg atg aag gac tac acc aaa gcc | 1403 |
| Thr Arg Lys Ala Ala Ala Leu Glu Ala Met Lys Asp Tyr Thr Lys Ala | |
| 435 440 445 | |
| atg gat gtg tac cag aag gcg cta gac ctg gac tcc agc tgt aag gag | 1451 |
| Met Asp Val Tyr Gln Lys Ala Leu Asp Leu Asp Ser Ser Cys Lys Glu | |
| 450 455 460 | |
| gcg gca gac ggc tac cag cgc tgt atg atg gcg cag tac aac cgg cac | 1499 |
| Ala Ala Asp Gly Tyr Gln Arg Cys Met Met Ala Gln Tyr Asn Arg His | |
| 465 470 475 | |
| gac agc ccc gaa gat gtg aag cga cga gcc atg gcc gac cct gag gtg | 1547 |
| Asp Ser Pro Glu Asp Val Lys Arg Arg Ala Met Ala Asp Pro Glu Val | |
| 480 485 490 495 | |
| cag cag atc atg agt gac cca gcc atg cgc ctt atc ctg gaa cag atg | 1595 |
| Gln Gln Ile Met Ser Asp Pro Ala Met Arg Leu Ile Leu Glu Gln Met | |
| 500 505 510 | |
| cag aag gac ccc cag gca ctc agc gaa cac tta aag aat cct gta ata | 1643 |
| Gln Lys Asp Pro Gln Ala Leu Ser Glu His Leu Lys Asn Pro Val Ile | |

| 515 | 520 | 525 | |
|--|-----|-----|------|
| gca cag aag atc cag aag ctg atg gat gtg ggt ctg att gca att cgg | | | 1691 |
| Ala Gln Lys Ile Gln Lys Leu Met Asp Val Gly Leu Ile Ala Ile Arg | | | |
| 530 | 535 | 540 | |
| tga tgacttggtt atccccctt cccttcgccc tcatgtggaa agaggagctg | | | 1744 |
| ggaccgcggc gagcagcacg gagcggaagg gagagcaggg gagagaaggc ctcatctctc | | | 1804 |
| tatatattata cataaccccg gggaagacac agagactcgt acctgcgctg tttgtgccgc | | | 1864 |
| cgtgcctct gggccctccc agcacacgca tggctctctt accgctgccc tcgagttcca | | | 1924 |
| tgtctctttt ccctgcccct agttgctgtc tcggctgctc tcccatagtt gggttttttt | | | 1984 |
| ttatttgggg cagtgggcat gttatgggga ggggaggggg ttcttcagc ctcaggctcc | | | 2044 |
| agctgtctca cgttgtttat tctgcgtccc ctctccaat aaaacaagcc agttgggcgt | | | 2104 |
| ggttataac | | | 2113 |

<210> 16
 <211> 543
 <212> PRT
 <213> Homo sapiens

<400> 16

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Gln | Val | Asn | Glu | Leu | Lys | Glu | Lys | Gly | Asn | Lys | Ala | Leu | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Asn | Ile | Asp | Asp | Ala | Leu | Gln | Cys | Tyr | Ser | Glu | Ala | Ile | Lys |
| | | 20 | | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asp | Pro | His | Asn | His | Val | Leu | Tyr | Ser | Asn | Arg | Ser | Ala | Ala | Tyr |
| | 35 | | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Lys | Lys | Gly | Asp | Tyr | Gln | Lys | Ala | Tyr | Glu | Asp | Gly | Cys | Lys | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asp | Leu | Lys | Pro | Asp | Trp | Gly | Lys | Gly | Tyr | Ser | Arg | Lys | Ala | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |

Ala Leu Glu Phe Leu Asn Arg Phe Glu Glu Ala Lys Arg Thr Tyr Glu
85 90 95

Glu Gly Leu Lys His Glu Ala Asn Asn Pro Gln Leu Lys Glu Gly Leu
100 105 110

Gln Asn Met Glu Ala Arg Leu Ala Glu Arg Lys Phe Met Asn Pro Phe
115 120 125

Asn Met Pro Asn Leu Tyr Gln Lys Leu Glu Ser Asp Pro Arg Thr Arg
130 135 140

Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu Arg
145 150 155 160

Asn Lys Pro Ser Asp Leu Gly Thr Lys Leu Gln Asp Pro Arg Ile Met
165 170 175

Thr Thr Leu Ser Val Leu Leu Gly Val Asp Leu Gly Ser Met Asp Glu
180 185 190

Glu Glu Glu Ile Ala Thr Pro Pro Pro Pro Pro Pro Pro Lys Lys Glu
195 200 205

Thr Lys Pro Glu Pro Met Glu Glu Asp Leu Pro Glu Asn Lys Lys Gln
210 215 220

Ala Leu Lys Glu Lys Glu Leu Gly Asn Asp Ala Tyr Lys Lys Lys Asp
225 230 235 240

Phe Asp Thr Ala Leu Lys His Tyr Asp Lys Ala Lys Glu Leu Asp Pro
245 250 255

Thr Asn Met Thr Tyr Ile Thr Asn Gln Ala Ala Val Tyr Phe Glu Lys
260 265 270

Gly Asp Tyr Asn Lys Cys Arg Glu Leu Cys Glu Lys Ala Ile Glu Val
275 280 285

Gly Arg Glu Asn Arg Glu Asp Tyr Arg Gln Ile Ala Lys Ala Tyr Ala
290 295 300

Arg Ile Gly Asn Ser Tyr Phe Lys Glu Glu Lys Tyr Lys Asp Ala Ile
305 310 315 320

His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val Leu
325 330 335

Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg Leu
340 345 350

Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly Asn
355 360 365

Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr Thr
370 375 380

Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn Arg
385 390 395 400

Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys Asp
405 410 415

Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr Thr
420 425 430

Arg Lys Ala Ala Ala Leu Glu Ala Met Lys Asp Tyr Thr Lys Ala Met
435 440 445

Asp Val Tyr Gln Lys Ala Leu Asp Leu Asp Ser Ser Cys Lys Glu Ala
450 455 460

Ala Asp Gly Tyr Gln Arg Cys Met Met Ala Gln Tyr Asn Arg His Asp
465 470 475 480

Ser Pro Glu Asp Val Lys Arg Arg Ala Met Ala Asp Pro Glu Val Gln
485 490 495

Gln Ile Met Ser Asp Pro Ala Met Arg Leu Ile Leu Glu Gln Met Gln
500 505 510

Lys Asp Pro Gln Ala Leu Ser Glu His Leu Lys Asn Pro Val Ile Ala
515 520 525

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530 535 540

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Gly Gly Gly Gly Gly Gly Arg Tyr Tyr Gly Gly Gly Ser Glu Gly Gly
10 15 20

cgg gcc cct aag cgg ctc aag act gac aac gcc ggc gac cag cac gga 148
Arg Ala Pro Lys Arg Leu Lys Thr Asp Asn Ala Gly Asp Gln His Gly
25 30 35 40

ggc ggc ggc ggt ggc ggt gga gga gcc ggg gcg gcg ggc ggc ggc ggc 196
Gly Gly Gly Gly Gly Gly Gly Gly Ala Gly Ala Ala Gly Gly Gly Gly
45 50 55

ggt ggg gag aac tac gat gac ccg cac aaa acc cct gcc tcc cca gtt 244
Gly Gly Glu Asn Tyr Asp Asp Pro His Lys Thr Pro Ala Ser Pro Val
60 65 70

gtc cac atc agg ggc ctg att gac ggt gtg gtg gaa gca gac ctt gtg 292
Val His Ile Arg Gly Leu Ile Asp Gly Val Val Glu Ala Asp Leu Val
75 80 85

| | |
|---|-----|
| gag gcc ttg cag gag ttt gga ccc atc agc tat gtg gtg gta atg cct | 340 |
| Glu Ala Leu Gln Glu Phe Gly Pro Ile Ser Tyr Val Val Val Met Pro | |
| 90 95 100 | |
| aaa aag aga caa gca ctg gtg gag ttt gaa gat gtg ttg ggg gct tgc | 388 |
| Lys Lys Arg Gln Ala Leu Val Glu Phe Glu Asp Val Leu Gly Ala Cys | |
| 105 110 115 120 | |
| aac gca gtg aac tac gca gcc gac aac caa ata tac att gct ggt cac | 436 |
| Asn Ala Val Asn Tyr Ala Ala Asp Asn Gln Ile Tyr Ile Ala Gly His | |
| 125 130 135 | |
| cca gct ttt gtc aac tac tct acc agc cag aag atc tcc cgc cct ggg | 484 |
| Pro Ala Phe Val Asn Tyr Ser Thr Ser Gln Lys Ile Ser Arg Pro Gly | |
| 140 145 150 | |
| gac tcg gat gac tcc cgg agc gtg aac agt gtg ctt ctc ttt acc atc | 532 |
| Asp Ser Asp Asp Ser Arg Ser Val Asn Ser Val Leu Leu Phe Thr Ile | |
| 155 160 165 | |
| ctg aac ccc att tat tcg atc acc acg gat gtt ctt tac act atc tgt | 580 |
| Leu Asn Pro Ile Tyr Ser Ile Thr Thr Asp Val Leu Tyr Thr Ile Cys | |
| 170 175 180 | |
| aat cct tgt ggc cct gtc cag aga att gtc att ttc agg aag aat gga | 628 |
| Asn Pro Cys Gly Pro Val Gln Arg Ile Val Ile Phe Arg Lys Asn Gly | |
| 185 190 195 200 | |
| gtt cag gcg atg gtg gaa ttt gac tca gtt caa agt gcc cag cgg gcc | 676 |
| Val Gln Ala Met Val Glu Phe Asp Ser Val Gln Ser Ala Gln Arg Ala | |
| 205 210 215 | |
| aag gcc tct ctc aat ggg gct gat atc tat tct ggc tgt tgc act ctg | 724 |
| Lys Ala Ser Leu Asn Gly Ala Asp Ile Tyr Ser Gly Cys Cys Thr Leu | |
| 220 225 230 | |
| aag atc gaa tac gca aag cct aca cgc ttg aat gtg ttc aag aat gat | 772 |
| Lys Ile Glu Tyr Ala Lys Pro Thr Arg Leu Asn Val Phe Lys Asn Asp | |
| 235 240 245 | |
| cag gat act tgg gac tac aca aac ccc aat ctc agt gga caa ggt gac | 820 |
| Gln Asp Thr Trp Asp Tyr Thr Asn Pro Asn Leu Ser Gly Gln Gly Asp | |
| 250 255 260 | |
| cct ggc agc aac ccc aac aaa cgc cag agg cag ccc cct ctc ctg gga | 868 |
| Pro Gly Ser Asn Pro Asn Lys Arg Gln Arg Gln Pro Pro Leu Leu Gly | |
| 265 270 275 280 | |
| gat cac ccc gca gaa tat gga ggg ccc cac ggt ggg tac cac agc cat | 916 |

| | |
|---|------|
| Asp His Pro Ala Glu Tyr Gly Gly Pro His Gly Gly Tyr His Ser His | |
| 285 290 295 | |
| tac cat gat gag ggc tac ggg ccc ccc cca cct cac tac gaa ggg aga | 964 |
| Tyr His Asp Glu Gly Tyr Gly Pro Pro Pro Pro His Tyr Glu Gly Arg | |
| 300 305 310 | |
| agg atg ggt cca cca gtg ggg ggt cac cgt cgg ggc cca agt cgc tac | 1012 |
| Arg Met Gly Pro Pro Val Gly Gly His Arg Arg Gly Pro Ser Arg Tyr | |
| 315 320 325 | |
| ggc ccc cag tat ggg cac ccc cca ccc cct ccc cca cca ccc gag tat | 1060 |
| Gly Pro Gln Tyr Gly His Pro Pro Pro Pro Pro Pro Pro Pro Glu Tyr | |
| 330 335 340 | |
| ggc cct cac gcc gac agc cct gtg ctc atg gtc tat ggc ttg gat caa | 1108 |
| Gly Pro His Ala Asp Ser Pro Val Leu Met Val Tyr Gly Leu Asp Gln | |
| 345 350 355 360 | |
| tct aag atg aac ggt gac cga gtc ttc aat gtc ttc tgc tta tat ggc | 1156 |
| Ser Lys Met Asn Gly Asp Arg Val Phe Asn Val Phe Cys Leu Tyr Gly | |
| 365 370 375 | |
| aat gtg gag aag gtg aaa ttc atg aaa agc aag ccg ggg gcc gcc atg | 1204 |
| Asn Val Glu Lys Val Lys Phe Met Lys Ser Lys Pro Gly Ala Ala Met | |
| 380 385 390 | |
| gtg gag atg gct gat ggc tac gct gta gac cgg gcc att acc cac ctc | 1252 |
| Val Glu Met Ala Asp Gly Tyr Ala Val Asp Arg Ala Ile Thr His Leu | |
| 395 400 405 | |
| aac aac aac ttc atg ttt ggg cag aag ctg aat gtc tgt gtc tcc aag | 1300 |
| Asn Asn Asn Phe Met Phe Gly Gln Lys Leu Asn Val Cys Val Ser Lys | |
| 410 415 420 | |
| cag cca gcc atc atg cct ggt cag tca tac ggg ttg gaa gac ggg tct | 1348 |
| Gln Pro Ala Ile Met Pro Gly Gln Ser Tyr Gly Leu Glu Asp Gly Ser | |
| 425 430 435 440 | |
| tgc agt tac aaa gac ttc agt gaa tcc cgg aac aat cgg ttc tcc acc | 1396 |
| Cys Ser Tyr Lys Asp Phe Ser Glu Ser Arg Asn Asn Arg Phe Ser Thr | |
| 445 450 455 | |
| cca gag cag gca gcc aag aac cgc atc cag cac ccc agc aac gtg ctg | 1444 |
| Pro Glu Gln Ala Ala Lys Asn Arg Ile Gln His Pro Ser Asn Val Leu | |
| 460 465 470 | |
| cac ttc ttc aac gcc ccg ctg gag gtg acc gag gag aac ttc ttt gag | 1492 |
| His Phe Phe Asn Ala Pro Leu Glu Val Thr Glu Glu Asn Phe Phe Glu | |
| 475 480 485 | |

atc tgc gat gag ctg gga gtg aag cgg cca tct tct gtg aaa gta ttc 1540
 Ile Cys Asp Glu Leu Gly Val Lys Arg Pro Ser Ser Val Lys Val Phe
 490 495 500

 tca ggc aaa agt gag cgc agc tcc tct gga ctg ctg gag tgg gaa tcc 1588
 Ser Gly Lys Ser Glu Arg Ser Ser Ser Gly Leu Leu Glu Trp Glu Ser
 505 510 515 520

 aag agc gat gcc ctg gag act ctg ggc ttc ctg aac cat tac cag atg 1636
 Lys Ser Asp Ala Leu Glu Thr Leu Gly Phe Leu Asn His Tyr Gln Met
 525 530 535

 aaa aac cca aat ggt cca tac cct tac act ctg aag ttg tgt ttc tcc 1684
 Lys Asn Pro Asn Gly Pro Tyr Pro Tyr Thr Leu Lys Leu Cys Phe Ser
 540 545 550

 act gct cag cac gcc tcc taa ttaggtgcct aggaagagtc ccatctgagc 1735
 Thr Ala Gln His Ala Ser
 555

 aggaagacat ttctctttcc tttatgccat tttttgtttt tgttatttgc aaaagatcct 1795
 gtattcccttt tttttttttt ttttttttaa atgctagggtt tgtagaggct tacttaacct 1855
 taatggaaac gctggaaatc tgcaggggga gggagagggg aactgttata tcccaagatt 1915
 aaccttcaact tttaaaaaat tattgtacat gtgatttttt tttttcctgt tcatacattt 1975
 gtgctgcccc tgtactcttg gcacatttca ataaaattgt ttggaaaata aacacagc 2033

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 <212> PRT
 <213> Homo sapiens

<400> 18

Met Val Lys Met Ala Ala Ala Gly Gly Gly Gly Gly Gly Gly Arg Tyr
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Tyr Gly Gly Gly Ser Glu Gly Gly Arg Ala Pro Lys Arg Leu Lys Thr
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Asp Asn Ala Gly Asp Gln His Gly Gly Gly Gly Gly Gly Gly Gly Gly
 35 40 45

Ala Gly Ala Ala Gly Gly Gly Gly Gly Gly Glu Asn Tyr Asp Asp Pro
50 55 60

His Lys Thr Pro Ala Ser Pro Val Val His Ile Arg Gly Leu Ile Asp
65 70 75 80

Gly Val Val Glu Ala Asp Leu Val Glu Ala Leu Gln Glu Phe Gly Pro
85 90 95

Ile Ser Tyr Val Val Val Met Pro Lys Lys Arg Gln Ala Leu Val Glu
100 105 110

Phe Glu Asp Val Leu Gly Ala Cys Asn Ala Val Asn Tyr Ala Ala Asp
115 120 125

Asn Gln Ile Tyr Ile Ala Gly His Pro Ala Phe Val Asn Tyr Ser Thr
130 135 140

Ser Gln Lys Ile Ser Arg Pro Gly Asp Ser Asp Asp Ser Arg Ser Val
145 150 155 160

Asn Ser Val Leu Leu Phe Thr Ile Leu Asn Pro Ile Tyr Ser Ile Thr
165 170 175

Thr Asp Val Leu Tyr Thr Ile Cys Asn Pro Cys Gly Pro Val Gln Arg
180 185 190

Ile Val Ile Phe Arg Lys Asn Gly Val Gln Ala Met Val Glu Phe Asp
195 200 205

Ser Val Gln Ser Ala Gln Arg Ala Lys Ala Ser Leu Asn Gly Ala Asp
210 215 220

Ile Tyr Ser Gly Cys Cys Thr Leu Lys Ile Glu Tyr Ala Lys Pro Thr
225 230 235 240

Arg Leu Asn Val Phe Lys Asn Asp Gln Asp Thr Trp Asp Tyr Thr Asn
50/201

| | | |
|---|---------------------------------|-----|
| 245 | 250 | 255 |
| Pro Asn Leu Ser Gly Gln Gly Asp | Pro Gly Ser Asn Pro Asn Lys Arg | |
| 260 | 265 | 270 |
| Gln Arg Gln Pro Pro Leu Leu Gly Asp His Pro Ala Glu Tyr Gly Gly | | |
| 275 | 280 | 285 |
| Pro His Gly Gly Tyr His Ser His Tyr His Asp Glu Gly Tyr Gly Pro | | |
| 290 | 295 | 300 |
| Pro Pro Pro His Tyr Glu Gly Arg Arg Met Gly Pro Pro Val Gly Gly | | |
| 305 | 310 | 315 |
| His Arg Arg Gly Pro Ser Arg Tyr Gly Pro Gln Tyr Gly His Pro Pro | | |
| 325 | 330 | 335 |
| Pro Pro Pro Pro Pro Pro Glu Tyr Gly Pro His Ala Asp Ser Pro Val | | |
| 340 | 345 | 350 |
| Leu Met Val Tyr Gly Leu Asp Gln Ser Lys Met Asn Gly Asp Arg Val | | |
| 355 | 360 | 365 |
| Phe Asn Val Phe Cys Leu Tyr Gly Asn Val Glu Lys Val Lys Phe Met | | |
| 370 | 375 | 380 |
| Lys Ser Lys Pro Gly Ala Ala Met Val Glu Met Ala Asp Gly Tyr Ala | | |
| 385 | 390 | 395 |
| Val Asp Arg Ala Ile Thr His Leu Asn Asn Asn Phe Met Phe Gly Gln | | |
| 405 | 410 | 415 |
| Lys Leu Asn Val Cys Val Ser Lys Gln Pro Ala Ile Met Pro Gly Gln | | |
| 420 | 425 | 430 |
| Ser Tyr Gly Leu Glu Asp Gly Ser Cys Ser Tyr Lys Asp Phe Ser Glu | | |
| 435 | 440 | 445 |

Ser Arg Asn Asn Arg Phe Ser Thr Pro Glu Gln Ala Ala Lys Asn Arg
 450 455 460

Ile Gln His Pro Ser Asn Val Leu His Phe Phe Asn Ala Pro Leu Glu
 465 470 475 480

Val Thr Glu Glu Asn Phe Phe Glu Ile Cys Asp Glu Leu Gly Val Lys
 485 490 495

Arg Pro Ser Ser Val Lys Val Phe Ser Gly Lys Ser Glu Arg Ser Ser
 500 505 510

Ser Gly Leu Leu Glu Trp Glu Ser Lys Ser Asp Ala Leu Glu Thr Leu
 515 520 525

Gly Phe Leu Asn His Tyr Gln Met Lys Asn Pro Asn Gly Pro Tyr Pro
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Tyr Thr Leu Lys Leu Cys Phe Ser Thr Ala Gln His Ala Ser
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 tcgacaccag gcggatccgc tctgcagcac gaacccatct ccagccgcag ccgcagccgc 120
 cgccccgggcc gaggagcagc cgcagcagcc gccaccagtg gccgagtgag cggagccgag 180
 tttgaggcag cgcctagcgg tgaatcgggg ccctcacc atg agt tcc tcg cct gtt 236
 Met Ser Ser Ser Pro Val
 1 5

| | |
|---|-----|
| aat gta aaa aag ctg aag gtg tcg gag ctg aaa gag gag ctc aag aag | 284 |
| Asn Val Lys Lys Leu Lys Val Ser Glu Leu Lys Glu Glu Leu Lys Lys | |
| 10 15 20 | |
| cga cgc ctt tct gac aag ggt ctc aag gcc gag ctc atg gag cga ctc | 332 |
| Arg Arg Leu Ser Asp Lys Gly Leu Lys Ala Glu Leu Met Glu Arg Leu | |
| 25 30 35 | |
| cag gct gcg ctg gac gac gag gag gcc ggg ggc cgc ccc gcc atg gag | 380 |
| Gln Ala Ala Leu Asp Asp Glu Glu Ala Gly Gly Arg Pro Ala Met Glu | |
| 40 45 50 | |
| ccc ggg aac ggc agc cta gac ctg ggc ggg gat tcc gct ggg cgc tgc | 428 |
| Pro Gly Asn Gly Ser Leu Asp Leu Gly Gly Asp Ser Ala Gly Arg Ser | |
| 55 60 65 70 | |
| gga gca ggc ctc gag cag gag gcc gcg gcc ggc ggc gat gaa gag gag | 476 |
| Gly Ala Gly Leu Glu Gln Glu Ala Ala Ala Gly Gly Asp Glu Glu Glu | |
| 75 80 85 | |
| gag gaa gag gaa gag gag gag gaa gga atc tcc gct ctg gac ggc gac | 524 |
| Glu Glu Glu Glu Glu Glu Glu Glu Gly Ile Ser Ala Leu Asp Gly Asp | |
| 90 95 100 | |
| cag atg gag cta gga gag gag aac ggg gcc gcg ggg gcg gcc gac tgc | 572 |
| Gln Met Glu Leu Gly Glu Glu Asn Gly Ala Ala Gly Ala Ala Asp Ser | |
| 105 110 115 | |
| ggc ccg atg gag gag gag gag gcc gcc tgc gaa gac gag aac ggc gac | 620 |
| Gly Pro Met Glu Glu Glu Glu Ala Ala Ser Glu Asp Glu Asn Gly Asp | |
| 120 125 130 | |
| gat cag ggt ttc cag gaa ggg gaa gat gag ctc ggg gac gaa gag gaa | 668 |
| Asp Gln Gly Phe Gln Glu Gly Glu Asp Glu Leu Gly Asp Glu Glu Glu | |
| 135 140 145 150 | |
| ggc gcg ggc gac gag aac ggg cac ggg gag cag cag cct caa ccg ccg | 716 |
| Gly Ala Gly Asp Glu Asn Gly His Gly Glu Gln Gln Pro Gln Pro Pro | |
| 155 160 165 | |
| gcg acg cag cag caa cag ccc caa cag cag cgc ggg gcc gcc aag gag | 764 |
| Ala Thr Gln Gln Gln Gln Pro Gln Gln Gln Arg Gly Ala Ala Lys Glu | |
| 170 175 180 | |
| gcc gcg ggg aag agc agc ggc ccc acc tgc ctg ttc gcg gtg acg gtg | 812 |
| Ala Ala Gly Lys Ser Ser Gly Pro Thr Ser Leu Phe Ala Val Thr Val | |
| 185 190 195 | |
| gcg ccg ccc ggg gcg agg cag ggc cag cag cag gcg gga ggg gac ggc | 860 |
| Ala Pro Pro Gly Ala Arg Gln Gly Gln Gln Gln Ala Gly Gly Asp Gly | |

| 200 | 205 | 210 | |
|---|-----|-----|------|
| aaa aca gaa cag aaa ggc gga gat aaa aag agg ggt gtt aaa aga cca Lys Thr Glu Gln Lys Gly Gly Asp Lys Lys Arg Gly Val Lys Arg Pro 215 220 225 230 | | | 908 |
| cga gaa gat cat ggc cgt gga tat ttt gag tac att gaa gag aac aag Arg Glu Asp His Gly Arg Gly Tyr Phe Glu Tyr Ile Glu Glu Asn Lys 235 240 245 | | | 956 |
| tat agc aga gcc aaa tct cct cag cca cct gtt gaa gaa gaa gat gaa Tyr Ser Arg Ala Lys Ser Pro Gln Pro Pro Val Glu Glu Glu Asp Glu 250 255 260 | | | 1004 |
| cac ttc gat gac aca gtg gtt tgt ctt gat act tat aat tgt gat cta His Phe Asp Asp Thr Val Val Cys Leu Asp Thr Tyr Asn Cys Asp Leu 265 270 275 | | | 1052 |
| cat ttt aaa ata tca aga gat cgt ctc agt gct tct tcc ctt aca atg His Phe Lys Ile Ser Arg Asp Arg Leu Ser Ala Ser Ser Leu Thr Met 280 285 290 | | | 1100 |
| gag agt ttt gct ttt ctt tgg gct gga gga aga gca tcc tat ggt gtg Glu Ser Phe Ala Phe Leu Trp Ala Gly Gly Arg Ala Ser Tyr Gly Val 295 300 305 310 | | | 1148 |
| tca aaa ggc aaa gtg tgt ttt gag atg aag gtt aca gag aag atc cca Ser Lys Gly Lys Val Cys Phe Glu Met Lys Val Thr Glu Lys Ile Pro 315 320 325 | | | 1196 |
| gta agg cat tta tat aca aaa gat att gac ata cat gaa gtt cgt att Val Arg His Leu Tyr Thr Lys Asp Ile Asp Ile His Glu Val Arg Ile 330 335 340 | | | 1244 |
| ggc tgg tca cta act aca agt gga atg tta ctt ggt gaa gaa gaa ttt Gly Trp Ser Leu Thr Thr Ser Gly Met Leu Leu Gly Glu Glu Glu Phe 345 350 355 | | | 1292 |
| tct tat ggg tat tct cta aaa gga ata aaa aca tgc aac tgt gag act Ser Tyr Gly Tyr Ser Leu Lys Gly Ile Lys Thr Cys Asn Cys Glu Thr 360 365 370 | | | 1340 |
| gaa gat tat gga gaa aag ttt gat gaa aat gat gtg att aca tgt ttt Glu Asp Tyr Gly Glu Lys Phe Asp Glu Asn Asp Val Ile Thr Cys Phe 375 380 385 390 | | | 1388 |
| gct aac ttt gaa agt gat gaa gta gaa ctc tgc tat gct aag aat gga Ala Asn Phe Glu Ser Asp Glu Val Glu Leu Ser Tyr Ala Lys Asn Gly 395 400 405 | | | 1436 |

| | |
|---|------|
| caa gat ctt ggc gtt gcc ttc aaa atc agt aag gaa gtt ctt gct gga Gln Asp Leu Gly Val Ala Phe Lys Ile Ser Lys Glu Val Leu Ala Gly 410 415 420 | 1484 |
| cgg cca ctg ttc ccg cat gtt ctc tgc cac aac tgt gca gtt gaa ttt Arg Pro Leu Phe Pro His Val Leu Cys His Asn Cys Ala Val Glu Phe 425 430 435 | 1532 |
| aat ttt ggt cag aag gaa aag cca tat ttt cca ata cct gaa gag tat Asn Phe Gly Gln Lys Glu Lys Pro Tyr Phe Pro Ile Pro Glu Glu Tyr 440 445 450 | 1580 |
| act ttc atc cag aac gtc ccc tta gag gat cga gtt aga gga cca aag Thr Phe Ile Gln Asn Val Pro Leu Glu Asp Arg Val Arg Gly Pro Lys 455 460 465 470 | 1628 |
| ggg cct gaa gag aag aaa gat tgt gaa gtt gtg atg atg att ggc ttg Gly Pro Glu Glu Lys Lys Asp Cys Glu Val Val Met Met Ile Gly Leu 475 480 485 | 1676 |
| cca gga gct gga aaa act acc tgg gtt act aaa cat gca gca gaa aat Pro Gly Ala Gly Lys Thr Thr Trp Val Thr Lys His Ala Ala Glu Asn 490 495 500 | 1724 |
| cca ggg aaa tat aac att ctt ggc aca aat act att atg gat aag atg Pro Gly Lys Tyr Asn Ile Leu Gly Thr Asn Thr Ile Met Asp Lys Met 505 510 515 | 1772 |
| atg gtg gca ggt ttt aag aag caa atg gca gat act gga aaa ctg aac Met Val Ala Gly Phe Lys Lys Gln Met Ala Asp Thr Gly Lys Leu Asn 520 525 530 | 1820 |
| aca ctg ttg cag aga gcc ccc cag tgt ctt ggg aaa ttt att gag att Thr Leu Leu Gln Arg Ala Pro Gln Cys Leu Gly Lys Phe Ile Glu Ile 535 540 545 550 | 1868 |
| gct gcc cga aag aag cga aat ttt att ctg gat cag aca aat gtg tct Ala Ala Arg Lys Lys Arg Asn Phe Ile Leu Asp Gln Thr Asn Val Ser 555 560 565 | 1916 |
| gct gct gcc cag agg aga aaa atg tgc ctg ttt gca ggc ttc cag cga Ala Ala Ala Gln Arg Arg Lys Met Cys Leu Phe Ala Gly Phe Gln Arg 570 575 580 | 1964 |
| aaa gct gtt gta gtt tgc cca aaa gat gaa gac tat aag caa aga aca Lys Ala Val Val Val Cys Pro Lys Asp Glu Asp Tyr Lys Gln Arg Thr 585 590 595 | 2012 |
| cag aag aaa gca gaa gta gag ggg aaa gac cta cca gaa cat gcg gtc Gln Lys Lys Ala Glu Val Glu Gly Lys Asp Leu Pro Glu His Ala Val 55/201 | 2060 |

| 600 | 605 | 610 | |
|---|-----|-----|------|
| ctc aaa atg aaa gga aac ttt acc ctc cca gag gta gct gag tgc ttt | | | 2108 |
| Leu Lys Met Lys Gly Asn Phe Thr Leu Pro Glu Val Ala Glu Cys Phe | | | |
| 615 | 620 | 625 | 630 |
| gat gaa ata acc tat gtt gaa ctt cag aag gaa gaa gcc caa aaa ctc | | | 2156 |
| Asp Glu Ile Thr Tyr Val Glu Leu Gln Lys Glu Glu Ala Gln Lys Leu | | | |
| 635 | 640 | | 645 |
| ttg gag caa tat aag gaa gaa agc aaa aag gct ctt cca cca gaa aag | | | 2204 |
| Leu Glu Gln Tyr Lys Glu Glu Ser Lys Lys Ala Leu Pro Pro Glu Lys | | | |
| 650 | 655 | | 660 |
| aaa cag aac act ggc tca aag aaa agc aat aaa aat aag agt ggc aag | | | 2252 |
| Lys Gln Asn Thr Gly Ser Lys Lys Ser Asn Lys Asn Lys Ser Gly Lys | | | |
| 665 | 670 | | 675 |
| aac cag ttt aac aga ggt ggt ggc cat aga gga cgt gga gga ttc aat | | | 2300 |
| Asn Gln Phe Asn Arg Gly Gly Gly His Arg Gly Arg Gly Gly Phe Asn | | | |
| 680 | 685 | | 690 |
| atg cgt ggt gga aat ttc aga gga gga gcc cct ggg aat cgt ggc gga | | | 2348 |
| Met Arg Gly Gly Asn Phe Arg Gly Gly Ala Pro Gly Asn Arg Gly Gly | | | |
| 695 | 700 | 705 | 710 |
| tat aat agg agg ggc aac atg cca cag aga ggt ggt ggc ggt gga gga | | | 2396 |
| Tyr Asn Arg Arg Gly Asn Met Pro Gln Arg Gly Gly Gly Gly Gly Gly | | | |
| 715 | 720 | | 725 |
| agt ggt gga atc ggc tat cca tac cct cgt gcc cct gtt ttt cct ggc | | | 2444 |
| Ser Gly Gly Ile Gly Tyr Pro Tyr Pro Arg Ala Pro Val Phe Pro Gly | | | |
| 730 | 735 | | 740 |
| cgt ggt agt tac tca aac aga ggg aac tac aac aga ggt gga atg ccc | | | 2492 |
| Arg Gly Ser Tyr Ser Asn Arg Gly Asn Tyr Asn Arg Gly Gly Met Pro | | | |
| 745 | 750 | | 755 |
| aac aga ggg aac tac aac cag aac ttc aga gga cga gga aac aat cgt | | | 2540 |
| Asn Arg Gly Asn Tyr Asn Gln Asn Phe Arg Gly Arg Gly Asn Asn Arg | | | |
| 760 | 765 | | 770 |
| ggc tac aaa aat caa tct cag ggc tac aac cag tgg cag cag ggt caa | | | 2588 |
| Gly Tyr Lys Asn Gln Ser Gln Gly Tyr Asn Gln Trp Gln Gln Gly Gln | | | |
| 775 | 780 | 785 | 790 |
| ttc tgg ggt cag aag cca tgg agt cag cat tat cac caa gga tat tat | | | 2636 |
| Phe Trp Gly Gln Lys Pro Trp Ser Gln His Tyr His Gln Gly Tyr Tyr | | | |
| 795 | 800 | | 805 |

| | |
|--|------|
| tga atacccaaat aaaacgaact gatacatatt tctccaaaac cttcacaaga | 2689 |
| agtcgactgt tttcttttagt aggctaactt tttaaacatt ccacaagagg aagtcctgc | 2749 |
| gggttccttt tttagaagct ttgtgggttg attttttttc tttcttttt tgtacatttt | 2809 |
| taattgcagt ttaaaagtga atcgtaagag aacctcagca ttgtgcacga taagagaatg | 2869 |
| tgtcagtatt tcagggttct acatttttatc tgtaaaatgt gacttttttt tttttttatc | 2929 |
| acaacagaag taaaatgttg ctttgtacct ggtgtctttt attaagaatt tactcccccc | 2989 |
| atttctcaca gagaataaca gtcgggagtc attgtcacao tataatagaa atgtagcaa | 3049 |
| ccagattcat gtaaggacta agtggtcctc atgaattgca ttaagactct gtactgctca | 3109 |
| tattacactc catcctctct gtagtttgct gggtagtgga gggggtaagc taaatcatag | 3169 |
| tttctgacaa taactgggaa ggttttttct taaaataaca atggaattgg tataattggg | 3229 |
| attgaaaact aaaacttgga actaagatag agaagatgga gtgtatgtag aagggtgtt | 3289 |
| aaaaatgtaa aacttggttg cattatttgt ggaggctcaa acttgtgaag gtaataacca | 3349 |
| taatttttcc atttgttctg cattttgatt ctgaaaagaa agctggcttt gcccatttct | 3409 |
| tattaaaaaa acttgttgta aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa | 3465 |

<210> 20
 <211> 806
 <212> PRT
 <213> Homo sapiens

<400> 20

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Ser | Ser | Pro | Val | Asn | Val | Lys | Lys | Leu | Lys | Val | Ser | Glu | Leu |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Glu | Glu | Leu | Lys | Lys | Arg | Arg | Leu | Ser | Asp | Lys | Gly | Leu | Lys | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Leu | Met | Glu | Arg | Leu | Gln | Ala | Ala | Leu | Asp | Asp | Glu | Glu | Ala | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Arg | Pro | Ala | Met | Glu | Pro | Gly | Asn | Gly | Ser | Leu | Asp | Leu | Gly | Gly |
| | | 50 | | | | 55 | | | | | 60 | | | | |

Asp Ser Ala Gly Arg Ser Gly Ala Gly Leu Glu Gln Glu Ala Ala Ala
65 70 75 80

Gly Gly Asp Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Ile
85 90 95

Ser Ala Leu Asp Gly Asp Gln Met Glu Leu Gly Glu Glu Asn Gly Ala
100 105 110

Ala Gly Ala Ala Asp Ser Gly Pro Met Glu Glu Glu Glu Ala Ala Ser
115 120 125

Glu Asp Glu Asn Gly Asp Asp Gln Gly Phe Gln Glu Gly Glu Asp Glu
130 135 140

Leu Gly Asp Glu Glu Glu Gly Ala Gly Asp Glu Asn Gly His Gly Glu
145 150 155 160

Gln Gln Pro Gln Pro Pro Ala Thr Gln Gln Gln Gln Pro Gln Gln Gln
165 170 175

Arg Gly Ala Ala Lys Glu Ala Ala Gly Lys Ser Ser Gly Pro Thr Ser
180 185 190

Leu Phe Ala Val Thr Val Ala Pro Pro Gly Ala Arg Gln Gly Gln Gln
195 200 205

Gln Ala Gly Gly Asp Gly Lys Thr Glu Gln Lys Gly Gly Asp Lys Lys
210 215 220

Arg Gly Val Lys Arg Pro Arg Glu Asp His Gly Arg Gly Tyr Phe Glu
225 230 235 240

Tyr Ile Glu Glu Asn Lys Tyr Ser Arg Ala Lys Ser Pro Gln Pro Pro
245 250 255

Val Glu Glu Glu Asp Glu His Phe Asp Asp Thr Val Val Cys Leu Asp
260 265 270

Thr Tyr Asn Cys Asp Leu His Phe Lys Ile Ser Arg Asp Arg Leu Ser
275 280 285

Ala Ser Ser Leu Thr Met Glu Ser Phe Ala Phe Leu Trp Ala Gly Gly
290 295 300

Arg Ala Ser Tyr Gly Val Ser Lys Gly Lys Val Cys Phe Glu Met Lys
305 310 315 320

Val Thr Glu Lys Ile Pro Val Arg His Leu Tyr Thr Lys Asp Ile Asp
325 330 335

Ile His Glu Val Arg Ile Gly Trp Ser Leu Thr Thr Ser Gly Met Leu
340 345 350

Leu Gly Glu Glu Glu Phe Ser Tyr Gly Tyr Ser Leu Lys Gly Ile Lys
355 360 365

Thr Cys Asn Cys Glu Thr Glu Asp Tyr Gly Glu Lys Phe Asp Glu Asn
370 375 380

Asp Val Ile Thr Cys Phe Ala Asn Phe Glu Ser Asp Glu Val Glu Leu
385 390 395 400

Ser Tyr Ala Lys Asn Gly Gln Asp Leu Gly Val Ala Phe Lys Ile Ser
405 410 415

Lys Glu Val Leu Ala Gly Arg Pro Leu Phe Pro His Val Leu Cys His
420 425 430

Asn Cys Ala Val Glu Phe Asn Phe Gly Gln Lys Glu Lys Pro Tyr Phe
435 440 445

Pro Ile Pro Glu Glu Tyr Thr Phe Ile Gln Asn Val Pro Leu Glu Asp
450 455 460

Arg Val Arg Gly Pro Lys Gly Pro Glu Glu Lys Lys Asp Cys Glu Val
465 470 475 480

Val Met Met Ile Gly Leu Pro Gly Ala Gly Lys Thr Thr Trp Val Thr
485 490 495

Lys His Ala Ala Glu Asn Pro Gly Lys Tyr Asn Ile Leu Gly Thr Asn
500 505 510

Thr Ile Met Asp Lys Met Met Val Ala Gly Phe Lys Lys Gln Met Ala
515 520 525

Asp Thr Gly Lys Leu Asn Thr Leu Leu Gln Arg Ala Pro Gln Cys Leu
530 535 540

Gly Lys Phe Ile Glu Ile Ala Ala Arg Lys Lys Arg Asn Phe Ile Leu
545 550 555 560

Asp Gln Thr Asn Val Ser Ala Ala Ala Gln Arg Arg Lys Met Cys Leu
565 570 575

Phe Ala Gly Phe Gln Arg Lys Ala Val Val Val Cys Pro Lys Asp Glu
580 585 590

Asp Tyr Lys Gln Arg Thr Gln Lys Lys Ala Glu Val Glu Gly Lys Asp
595 600 605

Leu Pro Glu His Ala Val Leu Lys Met Lys Gly Asn Phe Thr Leu Pro
610 615 620

Glu Val Ala Glu Cys Phe Asp Glu Ile Thr Tyr Val Glu Leu Gln Lys
625 630 635 640

Glu Glu Ala Gln Lys Leu Leu Glu Gln Tyr Lys Glu Glu Ser Lys Lys
645 650 655

Ala Leu Pro Pro Glu Lys Lys Gln Asn Thr Gly Ser Lys Lys Ser Asn
660 665 670

Lys Asn Lys Ser Gly Lys Asn Gln Phe Asn Arg Gly Gly Gly His Arg
675 680 685

Gly Arg Gly Gly Phe Asn Met Arg Gly Gly Asn Phe Arg Gly Gly Ala
690 695 700

Pro Gly Asn Arg Gly Gly Tyr Asn Arg Arg Gly Asn Met Pro Gln Arg
705 710 715 720

Gly Gly Gly Gly Gly Gly Ser Gly Gly Ile Gly Tyr Pro Tyr Pro Arg
725 730 735

Ala Pro Val Phe Pro Gly Arg Gly Ser Tyr Ser Asn Arg Gly Asn Tyr
740 745 750

Asn Arg Gly Gly Met Pro Asn Arg Gly Asn Tyr Asn Gln Asn Phe Arg
755 760 765

Gly Arg Gly Asn Asn Arg Gly Tyr Lys Asn Gln Ser Gln Gly Tyr Asn
770 775 780

Gln Trp Gln Gln Gly Gln Phe Trp Gly Gln Lys Pro Trp Ser Gln His
785 790 795 800

Tyr His Gln Gly Tyr Tyr
805

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tccctctccc tttccctaag agttgtctgc tggttctcag cttgaagaag attctgcagt 180

ccttattgat cctttttctt ggcgttacca tttttgaagc aaagttaacc tagctttcta 240

gtttgagctt tctttttggc cgtctttaaa aaaaattttt tttttaatct ataaaataga 300

caagagctag ttctaca atg tcc aag tca ttc cag cag tca tct ctc agt 350
Met Ser Lys Ser Phe Gln Gln Ser Ser Leu Ser
1 5 10

agg gac tca cag ggt cat ggg cgt gac ctg tct gcg gca gga ata ggc 398
Arg Asp Ser Gln Gly His Gly Arg Asp Leu Ser Ala Ala Gly Ile Gly
15 20 25

ctt ctt gct gct gct acc cag tct tta agt atg cca gca tct ctt gga 446
Leu Leu Ala Ala Ala Thr Gln Ser Leu Ser Met Pro Ala Ser Leu Gly
30 35 40

agg atg aac cag ggt act gca cgc ctt gct agt tta atg aat ctt gga 494
Arg Met Asn Gln Gly Thr Ala Arg Leu Ala Ser Leu Met Asn Leu Gly
45 50 55

atg agt tct tca ttg aat caa caa gga gct cat agt gca ctg tct tct 542
Met Ser Ser Ser Leu Asn Gln Gln Gly Ala His Ser Ala Leu Ser Ser
60 65 70 75

gct agt act tct tcc cat aat ttg cag tct ata ttt aac att gga agt 590
Ala Ser Thr Ser Ser His Asn Leu Gln Ser Ile Phe Asn Ile Gly Ser
80 85 90

aga ggt cca ctc cct tta tct tct caa cac cgt gga gat gca gac cag 638
Arg Gly Pro Leu Pro Leu Ser Ser Gln His Arg Gly Asp Ala Asp Gln
95 100 105

gcc agt aac att ttg gcc agc ttt ggt ctg tct gct aga gac tta gat 686
Ala Ser Asn Ile Leu Ala Ser Phe Gly Leu Ser Ala Arg Asp Leu Asp
110 115 120

gaa ctg agt cgt tat cca gag gac aag att act cct gag aat ttg ccc 734
Glu Leu Ser Arg Tyr Pro Glu Asp Lys Ile Thr Pro Glu Asn Leu Pro
125 130 135

caa atc ctt cta cag ctt aaa agg agg aga act gaa gaa ggc cct acc 782
Gln Ile Leu Leu Gln Leu Lys Arg Arg Arg Thr Glu Glu Gly Pro Thr
140 145 150 155

| | |
|---|------|
| ttg agt tat ggt aga gat ggc aga tct gct aca cgg gag cca cca tac | 830 |
| Leu Ser Tyr Gly Arg Asp Gly Arg Ser Ala Thr Arg Glu Pro Pro Tyr | |
| 160 165 170 | |
| aga gta cct agg gat gat tgg gaa gaa aaa agg cac ttt aga aga gat | 878 |
| Arg Val Pro Arg Asp Asp Trp Glu Glu Lys Arg His Phe Arg Arg Asp | |
| 175 180 185 | |
| agt ttt gat gat cgt ggt cct agt ctc aac cca gtg ctt gat tat gac | 926 |
| Ser Phe Asp Asp Arg Gly Pro Ser Leu Asn Pro Val Leu Asp Tyr Asp | |
| 190 195 200 | |
| cat gga agt cgt tct caa gaa tct ggt tat tat gac aga atg gat tat | 974 |
| His Gly Ser Arg Ser Gln Glu Ser Gly Tyr Tyr Asp Arg Met Asp Tyr | |
| 205 210 215 | |
| gaa gat gac aga tta aga gat gga gaa agg tgt agg gat gat tct ttt | 1022 |
| Glu Asp Asp Arg Leu Arg Asp Gly Glu Arg Cys Arg Asp Asp Ser Phe | |
| 220 225 230 235 | |
| ttt ggt gag acc tcg cat aac tat cat aaa ttt gac agt gag tat gag | 1070 |
| Phe Gly Glu Thr Ser His Asn Tyr His Lys Phe Asp Ser Glu Tyr Glu | |
| 240 245 250 | |
| aga atg gga cgt ggt cct ggc ccc tta caa gag aga tct ctc ttt gag | 1118 |
| Arg Met Gly Arg Gly Pro Gly Pro Leu Gln Glu Arg Ser Leu Phe Glu | |
| 255 260 265 | |
| aaa aag aga ggc gct cct cca agt agc aat att gaa gac ttc cat gga | 1166 |
| Lys Lys Arg Gly Ala Pro Pro Ser Ser Asn Ile Glu Asp Phe His Gly | |
| 270 275 280 | |
| ctc tta ccg aag ggt tat ccc cat ctg tgc tct ata tgt gat ttg cca | 1214 |
| Leu Leu Pro Lys Gly Tyr Pro His Leu Cys Ser Ile Cys Asp Leu Pro | |
| 285 290 295 | |
| gtt cat tct aat aag gag tgg agt caa cat atc aat gga gca agt cac | 1262 |
| Val His Ser Asn Lys Glu Trp Ser Gln His Ile Asn Gly Ala Ser His | |
| 300 305 310 315 | |
| agt cgt cga tgc cag ctt ctt ctt gaa atc tac cca gaa tgg aat cct | 1310 |
| Ser Arg Arg Cys Gln Leu Leu Leu Glu Ile Tyr Pro Glu Trp Asn Pro | |
| 320 325 330 | |
| gac aat gat aca gga cac aca atg ggt gat cca ttc atg ttg cag cag | 1358 |
| Asp Asn Asp Thr Gly His Thr Met Gly Asp Pro Phe Met Leu Gln Gln | |
| 335 340 345 | |
| tct aca aat cca gca cca gga att ctg gga cct cca cct ccc tca ttt | 1406 |

| | |
|---|------|
| Ser Thr Asn Pro Ala Pro Gly Ile Leu Gly Pro Pro Pro Pro Ser Phe | |
| 350 355 360 | |
| cat ctt ggg gga cca gca gtt gga cca aga gga aat ctg ggt gct gga | 1454 |
| His Leu Gly Gly Pro Ala Val Gly Pro Arg Gly Asn Leu Gly Ala Gly | |
| 365 370 375 | |
| aat gga aac ctg caa gga cct aga cac atg cag aaa ggc aga gtg gaa | 1502 |
| Asn Gly Asn Leu Gln Gly Pro Arg His Met Gln Lys Gly Arg Val Glu | |
| 380 385 390 395 | |
| act agc aga gtt gtt cac atc atg gat ttt caa cga ggg aaa aac ttg | 1550 |
| Thr Ser Arg Val Val His Ile Met Asp Phe Gln Arg Gly Lys Asn Leu | |
| 400 405 410 | |
| aga tac cag cta tta cag ctg gta gaa cca ttt gga gtc att tca aat | 1598 |
| Arg Tyr Gln Leu Leu Gln Leu Val Glu Pro Phe Gly Val Ile Ser Asn | |
| 415 420 425 | |
| cat ctg att cta aat aaa att aat gag gca ttt att gaa atg gca acc | 1646 |
| His Leu Ile Leu Asn Lys Ile Asn Glu Ala Phe Ile Glu Met Ala Thr | |
| 430 435 440 | |
| aca gag gat gct cag gcc gca gtg gat tat tac aca acc aca cca gcg | 1694 |
| Thr Glu Asp Ala Gln Ala Ala Val Asp Tyr Tyr Thr Thr Thr Pro Ala | |
| 445 450 455 | |
| tta gta ttt ggc aag cca gtg aga gtt cat tta tcc cag aag tat aaa | 1742 |
| Leu Val Phe Gly Lys Pro Val Arg Val His Leu Ser Gln Lys Tyr Lys | |
| 460 465 470 475 | |
| aga ata aag aaa cct gaa gga aag cca gat cag aag ttt gat caa aag | 1790 |
| Arg Ile Lys Lys Pro Glu Gly Lys Pro Asp Gln Lys Phe Asp Gln Lys | |
| 480 485 490 | |
| caa gag ctt gga cgt gtg ata cat ctc agc aat ttg ccg cat tct ggc | 1838 |
| Gln Glu Leu Gly Arg Val Ile His Leu Ser Asn Leu Pro His Ser Gly | |
| 495 500 505 | |
| tat tct gat agt gct gtt ctc aag ctt gct gag cct tat ggg aaa ata | 1886 |
| Tyr Ser Asp Ser Ala Val Leu Lys Leu Ala Glu Pro Tyr Gly Lys Ile | |
| 510 515 520 | |
| aag aat tac ata ttg atg agg atg aaa agt cag gct ttt att gag atg | 1934 |
| Lys Asn Tyr Ile Leu Met Arg Met Lys Ser Gln Ala Phe Ile Glu Met | |
| 525 530 535 | |
| gag aca aga gaa gat gca atg gca atg gtt gac cat tgt ttg aaa aaa | 1982 |
| Glu Thr Arg Glu Asp Ala Met Ala Met Val Asp His Cys Leu Lys Lys | |
| 540 545 550 555 | |

| | |
|---|------|
| gcc ctt tgg ttt cag ggg aga tgt gtg aag gtt gac ctg tct gag aaa | 2030 |
| Ala Leu Trp Phe Gln Gly Arg Cys Val Lys Val Asp Leu Ser Glu Lys | |
| 560 565 570 | |
| tat aaa aaa ctg gtt ctg agg att cca aac aga ggc att gat tta ctg | 2078 |
| Tyr Lys Lys Leu Val Leu Arg Ile Pro Asn Arg Gly Ile Asp Leu Leu | |
| 575 580 585 | |
| aaa aaa gat aaa tcc cga aaa aga tct tac tct cca gat ggc aaa gaa | 2126 |
| Lys Lys Asp Lys Ser Arg Lys Arg Ser Tyr Ser Pro Asp Gly Lys Glu | |
| 590 595 600 | |
| tct cca agt gat aag aaa tcc aaa act gat ggt tcc cag aag act gag | 2174 |
| Ser Pro Ser Asp Lys Lys Ser Lys Thr Asp Gly Ser Gln Lys Thr Glu | |
| 605 610 615 | |
| agt tca acc gaa ggt aaa gaa caa gaa gag aag tcc ggt gaa gat ggt | 2222 |
| Ser Ser Thr Glu Gly Lys Glu Gln Glu Glu Lys Ser Gly Glu Asp Gly | |
| 620 625 630 635 | |
| gag aaa gac aca aag gat gac cag aca gag cag gaa cct aat atg ctt | 2270 |
| Glu Lys Asp Thr Lys Asp Asp Gln Thr Glu Gln Glu Pro Asn Met Leu | |
| 640 645 650 | |
| ctt gaa tct gaa gat gag cta ctt gta gat gaa gaa gaa gca gca gca | 2318 |
| Leu Glu Ser Glu Asp Glu Leu Leu Val Asp Glu Glu Glu Ala Ala Ala | |
| 655 660 665 | |
| ctg cta gaa agt ggc agt tca gtg gga gac gag acc gat ctt gct aat | 2366 |
| Leu Leu Glu Ser Gly Ser Ser Val Gly Asp Glu Thr Asp Leu Ala Asn | |
| 670 675 680 | |
| tta ggt gat gtg gct tct gat ggg aaa aag gaa cca tca gat aaa gct | 2414 |
| Leu Gly Asp Val Ala Ser Asp Gly Lys Lys Glu Pro Ser Asp Lys Ala | |
| 685 690 695 | |
| gtg aaa aaa gat gga agt gct tca gca gca gca aag aaa aag ctt aaa | 2462 |
| Val Lys Lys Asp Gly Ser Ala Ser Ala Ala Ala Lys Lys Lys Leu Lys | |
| 700 705 710 715 | |
| aag gtg gac aag atc gag gaa ctt gat caa gaa aac gaa gca gcg ttg | 2510 |
| Lys Val Asp Lys Ile Glu Glu Leu Asp Gln Glu Asn Glu Ala Ala Leu | |
| 720 725 730 | |
| gaa aat gga att aaa aat gag gaa aac aca gaa cca ggt gct gaa tct | 2558 |
| Glu Asn Gly Ile Lys Asn Glu Glu Asn Thr Glu Pro Gly Ala Glu Ser | |
| 735 740 745 | |
| tct gag aac gct gat gat ccc aac aaa gat aca agt gaa aac gca gat | 2606 |

| | |
|---|-------------|
| Ser Glu Asn Ala Asp Asp Pro Asn Lys Asp Thr Ser Glu Asn Ala Asp | |
| 750 | 755 760 |
| ggt caa agt gat gag aac aag gac gac tat aca atc cca gat gag tat | 2654 |
| Gly Gln Ser Asp Glu Asn Lys Asp Asp Tyr Thr Ile Pro Asp Glu Tyr | |
| 765 | 770 775 |
| aga att gga cca tat cag ccc aat gtt cct gtt ggt ata gac tat gtg | 2702 |
| Arg Ile Gly Pro Tyr Gln Pro Asn Val Pro Val Gly Ile Asp Tyr Val | |
| 780 | 785 790 795 |
| ata cct aaa aca ggg ttt tac tgt aag ctg tgt tca ctc ttt tat aca | 2750 |
| Ile Pro Lys Thr Gly Phe Tyr Cys Lys Leu Cys Ser Leu Phe Tyr Thr | |
| | 800 805 810 |
| aat gaa gaa gtt gca aag aat act cat tgc agc agc ctt cct cat tat | 2798 |
| Asn Glu Glu Val Ala Lys Asn Thr His Cys Ser Ser Leu Pro His Tyr | |
| | 815 820 825 |
| cag aaa tta aag aaa ttt ctg aat aaa ttg gca gaa gaa cgc aga cag | 2846 |
| Gln Lys Leu Lys Lys Phe Leu Asn Lys Leu Ala Glu Glu Arg Arg Gln | |
| | 830 835 840 |
| aag aag gaa act taa gatgtgcaag gagatttaaat gattttcaaag aaaataatgg | 2901 |
| Lys Lys Glu Thr | |
| 845 | |
| ttctttgttt ttaatgttaa ccttttttaa atacaatact gatagttaga agaaaactat | 2961 |
| tgtactcttt tgttttagtg gagaaataat agatgtctgt tcatgtgtta agtgttatag | 3021 |
| caaaaaaaaaat acacatatgg ttaagttaat gaatagtttt tgttttatca gaatggcaac | 3081 |
| agacagaagt actttgtaga gattgacttc ctaagctact taagacaact tgcaccacta | 3141 |
| agaaaaaaaaat gtagaacat ttggaaaaat gaaatttagt agttccaagt ttcaaagaaa | 3201 |
| tgtcaacatt ttattccatt caataaagaa caaaaccaat agtgttttta ttactttcat | 3261 |
| ctgaaacatt ccatgtttta atctgagcct tgcagacttt catttggagt ttgaaccctg | 3321 |
| tttggttgca ttccattttt ggagaactta attaacgtga gattggcaat tgaaatgcag | 3381 |
| gtgcagtttt ctgttaatgt catgctgttg ttaggtaat aagaaatatt aagtaattgg | 3441 |
| ctttagattt tgtaattttt ttccctgagt tctgctaga tttcgtattc tagtagtcaa | 3501 |
| tgtattttca gtgaaatgca aaaatatcc cgttatcttt gaccagtatt aatttttgag | 3561 |
| atcttactgc ttgtcacttg aatccccgtga ttgtcataca tctctggtat aagcaacatt | 3621 |

tgatttttga agtgtgtaga ccattctcttc atatatttcaa gatgtaattt tacatttctg 3681
 cattttttaa acagtttggc cataatccta gatgcacgct tctaattcat gtacctgcac 3741
 atgtgacctt tgtgaacaga aatttgcattg tataatttgt gtttacttgt aactttctgg 3801
 ttatatactg cttatatctg tggattcaag ttactgaagt gaataccaat aaaaagaaaa 3861
 ccctaggcca tgtaattgg ttatacatgt ttggaatgtt aaaaaaaaaa aaaaaaaaaa 3921
 aaaaaaaaaa aa 3933

<210> 22
 <211> 847
 <212> PRT
 <213> Homo sapiens

<400> 22

Met Ser Lys Ser Phe Gln Gln Ser Ser Leu Ser Arg Asp Ser Gln Gly
 1 5 10 15

His Gly Arg Asp Leu Ser Ala Ala Gly Ile Gly Leu Leu Ala Ala Ala
 20 25 30

Thr Gln Ser Leu Ser Met Pro Ala Ser Leu Gly Arg Met Asn Gln Gly
 35 40 45

Thr Ala Arg Leu Ala Ser Leu Met Asn Leu Gly Met Ser Ser Ser Leu
 50 55 60

Asn Gln Gln Gly Ala His Ser Ala Leu Ser Ser Ala Ser Thr Ser Ser
 65 70 75 80

His Asn Leu Gln Ser Ile Phe Asn Ile Gly Ser Arg Gly Pro Leu Pro
 85 90 95

Leu Ser Ser Gln His Arg Gly Asp Ala Asp Gln Ala Ser Asn Ile Leu
 100 105 110

Ala Ser Phe Gly Leu Ser Ala Arg Asp Leu Asp Glu Leu Ser Arg Tyr
 67/201

| | | | | |
|-------------------------|---------------------|---------------------|-----|-----|
| 115 | | 120 | | 125 |
| Pro Glu Asp Lys Ile Thr | Pro Glu Asn Leu Pro | Gln Ile Leu Leu Gln | | |
| 130 | 135 | 140 | | |
| Leu Lys Arg Arg Arg Thr | Glu Glu Gly Pro Thr | Leu Ser Tyr Gly Arg | | |
| 145 | 150 | 155 | 160 | |
| Asp Gly Arg Ser Ala Thr | Arg Glu Pro Pro Tyr | Arg Val Pro Arg Asp | | |
| | 165 | 170 | 175 | |
| Asp Trp Glu Glu Lys Arg | His Phe Arg Arg Asp | Ser Phe Asp Asp Arg | | |
| | 180 | 185 | 190 | |
| Gly Pro Ser Leu Asn Pro | Val Leu Asp Tyr Asp | His Gly Ser Arg Ser | | |
| | 195 | 200 | 205 | |
| Gln Glu Ser Gly Tyr Tyr | Asp Arg Met Asp Tyr | Glu Asp Asp Arg Leu | | |
| | 210 | 215 | 220 | |
| Arg Asp Gly Glu Arg Cys | Arg Asp Asp Ser Phe | Phe Gly Glu Thr Ser | | |
| 225 | 230 | 235 | 240 | |
| His Asn Tyr His Lys Phe | Asp Ser Glu Tyr Glu | Arg Met Gly Arg Gly | | |
| | 245 | 250 | 255 | |
| Pro Gly Pro Leu Gln Glu | Arg Ser Leu Phe Glu | Lys Lys Arg Gly Ala | | |
| | 260 | 265 | 270 | |
| Pro Pro Ser Ser Asn Ile | Glu Asp Phe His Gly | Leu Leu Pro Lys Gly | | |
| | 275 | 280 | 285 | |
| Tyr Pro His Leu Cys Ser | Ile Cys Asp Leu Pro | Val His Ser Asn Lys | | |
| | 290 | 295 | 300 | |
| Glu Trp Ser Gln His Ile | Asn Gly Ala Ser His | Ser Arg Arg Cys Gln | | |
| 305 | 310 | 315 | 320 | |

Leu Leu Leu Glu Ile Tyr Pro Glu Trp Asn Pro Asp Asn Asp Thr Gly
325 330 335

His Thr Met Gly Asp Pro Phe Met Leu Gln Gln Ser Thr Asn Pro Ala
340 345 350

Pro Gly Ile Leu Gly Pro Pro Pro Pro Ser Phe His Leu Gly Gly Pro
355 360 365

Ala Val Gly Pro Arg Gly Asn Leu Gly Ala Gly Asn Gly Asn Leu Gln
370 375 380

Gly Pro Arg His Met Gln Lys Gly Arg Val Glu Thr Ser Arg Val Val
385 390 395 400

His Ile Met Asp Phe Gln Arg Gly Lys Asn Leu Arg Tyr Gln Leu Leu
405 410 415

Gln Leu Val Glu Pro Phe Gly Val Ile Ser Asn His Leu Ile Leu Asn
420 425 430

Lys Ile Asn Glu Ala Phe Ile Glu Met Ala Thr Thr Glu Asp Ala Gln
435 440 445

Ala Ala Val Asp Tyr Tyr Thr Thr Thr Pro Ala Leu Val Phe Gly Lys
450 455 460

Pro Val Arg Val His Leu Ser Gln Lys Tyr Lys Arg Ile Lys Lys Pro
465 470 475 480

Glu Gly Lys Pro Asp Gln Lys Phe Asp Gln Lys Gln Glu Leu Gly Arg
485 490 495

Val Ile His Leu Ser Asn Leu Pro His Ser Gly Tyr Ser Asp Ser Ala
500 505 510

Val Leu Lys Leu Ala Glu Pro Tyr Gly Lys Ile Lys Asn Tyr Ile Leu
69/201

| | | | | |
|---|--|-----|--|-----|
| 515 | | 520 | | 525 |
| Met Arg Met Lys Ser Gln Ala Phe Ile Glu Met Glu Thr Arg Glu Asp | | | | |
| 530 | | 535 | | 540 |
| Ala Met Ala Met Val Asp His Cys Leu Lys Lys Ala Leu Trp Phe Gln | | | | |
| 545 | | 550 | | 555 |
| | | | | 560 |
| Gly Arg Cys Val Lys Val Asp Leu Ser Glu Lys Tyr Lys Lys Leu Val | | | | |
| | | 565 | | 570 |
| | | | | 575 |
| Leu Arg Ile Pro Asn Arg Gly Ile Asp Leu Leu Lys Lys Asp Lys Ser | | | | |
| | | 580 | | 585 |
| | | | | 590 |
| Arg Lys Arg Ser Tyr Ser Pro Asp Gly Lys Glu Ser Pro Ser Asp Lys | | | | |
| | | 595 | | 600 |
| | | | | 605 |
| Lys Ser Lys Thr Asp Gly Ser Gln Lys Thr Glu Ser Ser Thr Glu Gly | | | | |
| | | 610 | | 615 |
| | | | | 620 |
| Lys Glu Gln Glu Glu Lys Ser Gly Glu Asp Gly Glu Lys Asp Thr Lys | | | | |
| 625 | | 630 | | 635 |
| | | | | 640 |
| Asp Asp Gln Thr Glu Gln Glu Pro Asn Met Leu Leu Glu Ser Glu Asp | | | | |
| | | 645 | | 650 |
| | | | | 655 |
| Glu Leu Leu Val Asp Glu Glu Glu Ala Ala Ala Leu Leu Glu Ser Gly | | | | |
| | | 660 | | 665 |
| | | | | 670 |
| Ser Ser Val Gly Asp Glu Thr Asp Leu Ala Asn Leu Gly Asp Val Ala | | | | |
| | | 675 | | 680 |
| | | | | 685 |
| Ser Asp Gly Lys Lys Glu Pro Ser Asp Lys Ala Val Lys Lys Asp Gly | | | | |
| 690 | | 695 | | 700 |
| | | | | |
| Ser Ala Ser Ala Ala Ala Lys Lys Lys Leu Lys Lys Val Asp Lys Ile | | | | |
| 705 | | 710 | | 715 |
| | | | | 720 |

Glu Glu Leu Asp Gln Glu Asn Glu Ala Ala Leu Glu Asn Gly Ile Lys
725 730 735

Asn Glu Glu Asn Thr Glu Pro Gly Ala Glu Ser Ser Glu Asn Ala Asp
740 745 750

Asp Pro Asn Lys Asp Thr Ser Glu Asn Ala Asp Gly Gln Ser Asp Glu
755 760 765

Asn Lys Asp Asp Tyr Thr Ile Pro Asp Glu Tyr Arg Ile Gly Pro Tyr
770 775 780

Gln Pro Asn Val Pro Val Gly Ile Asp Tyr Val Ile Pro Lys Thr Gly
785 790 795 800

Phe Tyr Cys Lys Leu Cys Ser Leu Phe Tyr Thr Asn Glu Glu Val Ala
805 810 815

Lys Asn Thr His Cys Ser Ser Leu Pro His Tyr Gln Lys Leu Lys Lys
820 825 830

Phe Leu Asn Lys Leu Ala Glu Glu Arg Arg Gln Lys Lys Glu Thr
835 840 845

<210> 23
<211> 1339
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (47).. (1018)
<223>

<400> 23
gaattccgat tagtgtgatac tcagctcaag gcaaaggtgg gatatac atg gca tct 55
Met Ala Ser
1

atc tgg gtt gga cac cga gga aca gta aga gat tat cca gac ttt agc 103
Ile Trp Val Gly His Arg Gly Thr Val Arg Asp Tyr Pro Asp Phe Ser
71/201

| 5 | 10 | 15 | |
|---|-----|-----|-----|
| cca tca gtg gat gct gaa gct att cag aaa gca atc aga gga att gga | | | 151 |
| Pro Ser Val Asp Ala Glu Ala Ile Gln Lys Ala Ile Arg Gly Ile Gly | | | |
| 20 | 25 | 30 | 35 |
| act gat gag aaa atg ctc atc agc att ctg act gag agg tca aat gca | | | 199 |
| Thr Asp Glu Lys Met Leu Ile Ser Ile Leu Thr Glu Arg Ser Asn Ala | | | |
| | 40 | 45 | 50 |
| cag cgg cag ctg att gtt aag gaa tat caa gca gca tat gga aag gag | | | 247 |
| Gln Arg Gln Leu Ile Val Lys Glu Tyr Gln Ala Ala Tyr Gly Lys Glu | | | |
| | 55 | 60 | 65 |
| ctg aaa gat gac ttg aag ggt gat ctc tct ggc cac ttt gag cat ctc | | | 295 |
| Leu Lys Asp Asp Leu Lys Gly Asp Leu Ser Gly His Phe Glu His Leu | | | |
| | 70 | 75 | 80 |
| atg gtg gcc cta gtg act cca cca gca gtc ttt gat gca aag cag cta | | | 343 |
| Met Val Ala Leu Val Thr Pro Pro Ala Val Phe Asp Ala Lys Gln Leu | | | |
| | 85 | 90 | 95 |
| aag aaa tcc atg aag ggc gcg gga aca aac gaa gat gcc ttg att gaa | | | 391 |
| Lys Lys Ser Met Lys Gly Ala Gly Thr Asn Glu Asp Ala Leu Ile Glu | | | |
| 100 | 105 | 110 | 115 |
| atc tta act acc agg aca agc agg caa atg aag gat atc tct caa gcc | | | 439 |
| Ile Leu Thr Thr Arg Thr Ser Arg Gln Met Lys Asp Ile Ser Gln Ala | | | |
| | 120 | 125 | 130 |
| tat tat aca gta tac aag aag agt ctt gga gat gac att agt tcc gaa | | | 487 |
| Tyr Tyr Thr Val Tyr Lys Lys Ser Leu Gly Asp Asp Ile Ser Ser Glu | | | |
| | 135 | 140 | 145 |
| aca tct ggt gac ttc cgg aaa gct ctg ttg act ttg gca gat ggc aga | | | 535 |
| Thr Ser Gly Asp Phe Arg Lys Ala Leu Leu Thr Leu Ala Asp Gly Arg | | | |
| | 150 | 155 | 160 |
| aga gat gaa agt ctg aaa gtg gat gag cat ctg gcc aaa caa gat gcc | | | 583 |
| Arg Asp Glu Ser Leu Lys Val Asp Glu His Leu Ala Lys Gln Asp Ala | | | |
| | 165 | 170 | 175 |
| cag att ctc tat aaa gct ggt gag aac aga tgg ggc acg gat gaa gac | | | 631 |
| Gln Ile Leu Tyr Lys Ala Gly Glu Asn Arg Trp Gly Thr Asp Glu Asp | | | |
| 180 | 185 | 190 | 195 |
| aaa ttc act gag atc ctg tgt tta agg agc ttt cct caa tta aaa cta | | | 679 |
| Lys Phe Thr Glu Ile Leu Cys Leu Arg Ser Phe Pro Gln Leu Lys Leu | | | |
| | 200 | 205 | 210 |

| | |
|--|------|
| aca ttt gat gaa tac aga aat atc agc caa aag gac att gtg gac agc | 727 |
| Thr Phe Asp Glu Tyr Arg Asn Ile Ser Gln Lys Asp Ile Val Asp Ser | |
| 215 220 225 | |
| ata aaa gga gaa tta tct ggg cat ttt gaa gac tta ctg ttg gcc ata | 775 |
| Ile Lys Gly Glu Leu Ser Gly His Phe Glu Asp Leu Leu Leu Ala Ile | |
| 230 235 240 | |
| gtt aat tgt gtg agg aac acg ccg gcc ttt tta gcc gaa aga ctg cat | 823 |
| Val Asn Cys Val Arg Asn Thr Pro Ala Phe Leu Ala Glu Arg Leu His | |
| 245 250 255 | |
| cga gcc ttg aag ggt att gga act gat gag ttt act ctg aac cga ata | 871 |
| Arg Ala Leu Lys Gly Ile Gly Thr Asp Glu Phe Thr Leu Asn Arg Ile | |
| 260 265 270 275 | |
| atg gtg tcc aga tca gaa att gac ctt ttg gac att cga aca gag ttc | 919 |
| Met Val Ser Arg Ser Glu Ile Asp Leu Leu Asp Ile Arg Thr Glu Phe | |
| 280 285 290 | |
| aag aag cat tat ggc tat tcc cta tat tca gca att aaa tcg gat act | 967 |
| Lys Lys His Tyr Gly Tyr Ser Leu Tyr Ser Ala Ile Lys Ser Asp Thr | |
| 295 300 305 | |
| tct gga gac tat gaa atc aca ctc tta aaa atc tgt ggt gga gat gac | 1015 |
| Ser Gly Asp Tyr Glu Ile Thr Leu Leu Lys Ile Cys Gly Gly Asp Asp | |
| 310 315 320 | |
| tga accaagaaga taatctccaa aggtccacga tgggctttcc caacagctcc | 1068 |
| accttacttc ttctcatact atttaagaga acaagcaaata ataaacagca acttgtgttc | 1128 |
| ctaacaggaa ttttcattgt tctataacaa caacaacaaa agcgattatt attttagagc | 1188 |
| atctcattta taatgtagca gctcataaat gaaattgaaa atggatttaa agatctgcaa | 1248 |
| ctactatcca acttatatct ctgctttcaa agttaagaat ctttatagtt ctactccatt | 1308 |
| aaatataaag caagataata aaacggaatt c | 1339 |

<210> 24
 <211> 323
 <212> PRT
 <213> Homo sapiens

<400> 24

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| Met Ala Ser Ile Trp Val Gly His Arg Gly Thr Val Arg Asp Tyr Pro |
| 1 5 10 15 |

Asp Phe Ser Pro Ser Val Asp Ala Glu Ala Ile Gln Lys Ala Ile Arg
20 25 30

Gly Ile Gly Thr Asp Glu Lys Met Leu Ile Ser Ile Leu Thr Glu Arg
35 40 45

Ser Asn Ala Gln Arg Gln Leu Ile Val Lys Glu Tyr Gln Ala Ala Tyr
50 55 60

Gly Lys Glu Leu Lys Asp Asp Leu Lys Gly Asp Leu Ser Gly His Phe
65 70 75 80

Glu His Leu Met Val Ala Leu Val Thr Pro Pro Ala Val Phe Asp Ala
85 90 95

Lys Gln Leu Lys Lys Ser Met Lys Gly Ala Gly Thr Asn Glu Asp Ala
100 105 110

Leu Ile Glu Ile Leu Thr Thr Arg Thr Ser Arg Gln Met Lys Asp Ile
115 120 125

Ser Gln Ala Tyr Tyr Thr Val Tyr Lys Lys Ser Leu Gly Asp Asp Ile
130 135 140

Ser Ser Glu Thr Ser Gly Asp Phe Arg Lys Ala Leu Leu Thr Leu Ala
145 150 155 160

Asp Gly Arg Arg Asp Glu Ser Leu Lys Val Asp Glu His Leu Ala Lys
165 170 175

Gln Asp Ala Gln Ile Leu Tyr Lys Ala Gly Glu Asn Arg Trp Gly Thr
180 185 190

Asp Glu Asp Lys Phe Thr Glu Ile Leu Cys Leu Arg Ser Phe Pro Gln
195 200 205

Leu Lys Leu Thr Phe Asp Glu Tyr Arg Asn Ile Ser Gln Lys Asp Ile
 210 215 220

Val Asp Ser Ile Lys Gly Glu Leu Ser Gly His Phe Glu Asp Leu Leu
 225 230 235 240

Leu Ala Ile Val Asn Cys Val Arg Asn Thr Pro Ala Phe Leu Ala Glu
 245 250 255

Arg Leu His Arg Ala Leu Lys Gly Ile Gly Thr Asp Glu Phe Thr Leu
 260 265 270

Asn Arg Ile Met Val Ser Arg Ser Glu Ile Asp Leu Leu Asp Ile Arg
 275 280 285

Thr Glu Phe Lys Lys His Tyr Gly Tyr Ser Leu Tyr Ser Ala Ile Lys
 290 295 300

Ser Asp Thr Ser Gly Asp Tyr Glu Ile Thr Leu Leu Lys Ile Cys Gly
 305 310 315 320

Gly Asp Asp

<210> 25
 <211> 1659
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (152).. (1201)
 <223>

<400> 25
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 acatcctcca cctctcttgg tccagcgagc gttgccgggc cagggtcaag cggagggctc 120
 cgacggcgcg gacggagcga agcgccgagc c atg gcg cac caa acg ggc atc 172
 Met Ala His Gln Thr Gly Ile
 1 5

| | |
|---|-----|
| cac gcc acg gaa gag ctg aag gaa ttc ttt gcc aag gca cgg gct ggc His Ala Thr Glu Glu Leu Lys Glu Phe Phe Ala Lys Ala Arg Ala Gly 10 15 20 | 220 |
| tct gtg cgg ctc atc aag gtt gtg att gag gac gag cag ctc gtg ctg Ser Val Arg Leu Ile Lys Val Val Ile Glu Asp Glu Gln Leu Val Leu 25 30 35 | 268 |
| ggt gcc tcg cag gag cca gta ggc cgc tgg gat cag gac tat gac agg Gly Ala Ser Gln Glu Pro Val Gly Arg Trp Asp Gln Asp Tyr Asp Arg 40 45 50 55 | 316 |
| gcc gtg ctg cca ctg ctg gac gcc cag cag ccc tgc tac ctg ctc tac Ala Val Leu Pro Leu Leu Asp Ala Gln Gln Pro Cys Tyr Leu Leu Tyr 60 65 70 | 364 |
| cgc ctc gac tca cag aat gct cag ggc ttc gaa tgg ctc ttc ctc gcc Arg Leu Asp Ser Gln Asn Ala Gln Gly Phe Glu Trp Leu Phe Leu Ala 75 80 85 | 412 |
| tgg tcg cct gat aac tcc ccc gtg cgg ctg aag atg ctg tac gcg gcc Trp Ser Pro Asp Asn Ser Pro Val Arg Leu Lys Met Leu Tyr Ala Ala 90 95 100 | 460 |
| acg cgg gcc aca gtg aaa aag gag ttt gga ggt ggc cac atc aag gat Thr Arg Ala Thr Val Lys Lys Glu Phe Gly Gly Gly His Ile Lys Asp 105 110 115 | 508 |
| gag ctc ttc ggg act gtg aag gat gac ctc tct ttt gct ggg tac cag Glu Leu Phe Gly Thr Val Lys Asp Asp Leu Ser Phe Ala Gly Tyr Gln 120 125 130 135 | 556 |
| aaa cac ctg tcg tcc tgt gcg gca cct gcc ccg ctg acc tcg gct gag Lys His Leu Ser Ser Cys Ala Ala Pro Ala Pro Leu Thr Ser Ala Glu 140 145 150 | 604 |
| aga gag ctc cag cag atc cgc att aac gag gtg aag aca gag atc agt Arg Glu Leu Gln Gln Ile Arg Ile Asn Glu Val Lys Thr Glu Ile Ser 155 160 165 | 652 |
| gtg gaa agc aag cac cag acc ctg cag ggc ctc gcc ttc ccc ctg cag Val Glu Ser Lys His Gln Thr Leu Gln Gly Leu Ala Phe Pro Leu Gln 170 175 180 | 700 |
| cct gag gcc cag cgg gca ctc cag cag ctc aag cag aaa atg gtc aac Pro Glu Ala Gln Arg Ala Leu Gln Gln Leu Lys Gln Lys Met Val Asn 185 190 195 | 748 |
| tac atc cag atg aag ctg gac cta gag cgg gaa acc att gag ctg gtg | 796 |

| | |
|--|------|
| Tyr Ile Gln Met Lys Leu Asp Leu Glu Arg Glu Thr Ile Glu Leu Val | |
| 200 205 210 215 | |
| cac aca gag ccc acg gat gtg gcc cag ctg ccc tcc cgg gtg ccc cga | 844 |
| His Thr Glu Pro Thr Asp Val Ala Gln Leu Pro Ser Arg Val Pro Arg | |
| 220 225 230 | |
| gat gct gcc cgc tac cac ttc ttc ctc tac aag cac acc cat gag ggc | 892 |
| Asp Ala Ala Arg Tyr His Phe Phe Leu Tyr Lys His Thr His Glu Gly | |
| 235 240 245 | |
| gac ccc ctt gag tct gta gtg ttc atc tac tcc atg ccg ggg tac aag | 940 |
| Asp Pro Leu Glu Ser Val Val Phe Ile Tyr Ser Met Pro Gly Tyr Lys | |
| 250 255 260 | |
| tgc agc atc aag gag cga atg ctc tac tcc agc tgc aag agc cgc ctc | 988 |
| Cys Ser Ile Lys Glu Arg Met Leu Tyr Ser Ser Cys Lys Ser Arg Leu | |
| 265 270 275 | |
| ctc gac tcc gtg gag cag gac ttc cat ctg gag atc gcc aag aaa att | 1036 |
| Leu Asp Ser Val Glu Gln Asp Phe His Leu Glu Ile Ala Lys Lys Ile | |
| 280 285 290 295 | |
| gag att ggc gat ggg gca gag ctg acg gca gag ttc ctc tac gac gag | 1084 |
| Glu Ile Gly Asp Gly Ala Glu Leu Thr Ala Glu Phe Leu Tyr Asp Glu | |
| 300 305 310 | |
| gtg cac ccc aag caa cac gcc ttc aag cag gcc ttc gcc aag ccc aag | 1132 |
| Val His Pro Lys Gln His Ala Phe Lys Gln Ala Phe Ala Lys Pro Lys | |
| 315 320 325 | |
| ggc cca ggg ggc aag cgg ggc cat aag cgc ctc atc cgc ggc ccg ggt | 1180 |
| Gly Pro Gly Gly Lys Arg Gly His Lys Arg Leu Ile Arg Gly Pro Gly | |
| 330 335 340 | |
| gaa aat ggg gat gac agc tag gaggtggag cagggccggc cacgtgtgga | 1231 |
| Glu Asn Gly Asp Asp Ser | |
| 345 | |
| ctgtggggct gcccaccttc cgtccctgc caccatcctc cttcctgggc tccaggaaag | 1291 |
| tgtttctggg aggtcaggag ggctggcagc tgaacgcact tgcagcgtcc gagggccacc | 1351 |
| gggctggcat tttgtgacct ttcctgttg ctgtccctgc atctcgtctg tgtgcccagg | 1411 |
| gtgtccgggg accctgcctg gctggcttaa gggggctggg tcaggggcct ggcatgaacc | 1471 |
| tggcctcccg gggagctgag actaggggtcc cagcacagcc cagaaacctt tggccacaag | 1531 |
| aagtggggtc agtcagggt ggggcagggg tcaactgcagt ttgggatggt tgaatgctgt | 1591 |

atcttctaaa gaataaaata tttttaaatc aagaaaaaaa aaaaaaaaaa aaaaaaaaaa 1651

aaaaaaaaa 1659

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<211> 349

<212> PRT

<213> Homo sapiens

<400> 26

Met Ala His Gln Thr Gly Ile His Ala Thr Glu Glu Leu Lys Glu Phe
1 5 10 15

Phe Ala Lys Ala Arg Ala Gly Ser Val Arg Leu Ile Lys Val Val Ile
20 25 30

Glu Asp Glu Gln Leu Val Leu Gly Ala Ser Gln Glu Pro Val Gly Arg
35 40 45

Trp Asp Gln Asp Tyr Asp Arg Ala Val Leu Pro Leu Leu Asp Ala Gln
50 55 60

Gln Pro Cys Tyr Leu Leu Tyr Arg Leu Asp Ser Gln Asn Ala Gln Gly
65 70 75 80

Phe Glu Trp Leu Phe Leu Ala Trp Ser Pro Asp Asn Ser Pro Val Arg
85 90 95

Leu Lys Met Leu Tyr Ala Ala Thr Arg Ala Thr Val Lys Lys Glu Phe
100 105 110

Gly Gly Gly His Ile Lys Asp Glu Leu Phe Gly Thr Val Lys Asp Asp
115 120 125

Leu Ser Phe Ala Gly Tyr Gln Lys His Leu Ser Ser Cys Ala Ala Pro
130 135 140

Ala Pro Leu Thr Ser Ala Glu Arg Glu Leu Gln Gln Ile Arg Ile Asn
78/201

| | | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----|--|-----|
| 145 | | 150 | | 155 | | 160 |
| Glu Val Lys Thr | Glu Ile Ser Val | Glu Ser Lys His | Gln Thr Leu Gln | | | |
| | 165 | | 170 | | | 175 |
| Gly Leu Ala Phe | Pro Leu Gln Pro | Glu Ala Gln Arg | Ala Leu Gln Gln | | | |
| | 180 | | 185 | | | 190 |
| Leu Lys Gln Lys | Met Val Asn Tyr | Ile Gln Met Lys | Leu Asp Leu Glu | | | |
| | 195 | | 200 | | | 205 |
| Arg Glu Thr Ile | Glu Leu Val His | Thr Glu Pro Thr | Asp Val Ala Gln | | | |
| | 210 | | 215 | | | 220 |
| Leu Pro Ser Arg | Val Pro Arg Asp | Ala Ala Arg Tyr | His Phe Phe Leu | | | |
| | 225 | | 230 | | | 240 |
| Tyr Lys His Thr | His Glu Gly Asp | Pro Leu Glu Ser | Val Val Phe Ile | | | |
| | 245 | | 250 | | | 255 |
| Tyr Ser Met Pro | Gly Tyr Lys Cys | Ser Ile Lys Glu | Arg Met Leu Tyr | | | |
| | 260 | | 265 | | | 270 |
| Ser Ser Cys Lys | Ser Arg Leu Leu | Asp Ser Val Glu | Gln Asp Phe His | | | |
| | 275 | | 280 | | | 285 |
| Leu Glu Ile Ala | Lys Lys Ile Glu | Ile Gly Asp Gly | Ala Glu Leu Thr | | | |
| | 290 | | 295 | | | 300 |
| Ala Glu Phe Leu | Tyr Asp Glu Val | His Pro Lys Gln | His Ala Phe Lys | | | |
| | 305 | | 310 | | | 315 |
| Gln Ala Phe Ala | Lys Pro Lys Gly | Pro Gly Gly Lys | Arg Gly His Lys | | | |
| | 325 | | 330 | | | 335 |
| Arg Leu Ile Arg | Gly Pro Gly Glu | Asn Gly Asp Asp | Ser | | | |
| | 340 | | 345 | | | |

<210> 27
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 <222> (91)..(837)
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 gttctcgagt ccgcgctttt cgtcaccgcc atg tgc gga ggt ggt gtg att cgt 114
 Met Ser Gly Gly Gly Val Ile Arg
 1 5
 ggc ccc gca ggg aac aac gat tgc cgc atc tac gtg ggt aac tta cct 162
 Gly Pro Ala Gly Asn Asn Asp Cys Arg Ile Tyr Val Gly Asn Leu Pro
 10 15 20
 cca gac atc cga acc aag gac att gag gac gtg ttc tac aaa tac ggc 210
 Pro Asp Ile Arg Thr Lys Asp Ile Glu Asp Val Phe Tyr Lys Tyr Gly
 25 30 35 40
 gct atc cgc gac atc gac ctc aag aat cgc cgc ggg gga ccg ccc ttc 258
 Ala Ile Arg Asp Ile Asp Leu Lys Asn Arg Arg Gly Gly Pro Pro Phe
 45 50 55
 gcc ttc gtt gag ttc gag gac ccg cga gac gcg gaa gac gcg gtg tat 306
 Ala Phe Val Glu Phe Glu Asp Pro Arg Asp Ala Glu Asp Ala Val Tyr
 60 65 70
 ggt cgc gac ggc tat gat tac gat ggg tac cgt ctg cgg gtg gag ttt 354
 Gly Arg Asp Gly Tyr Asp Tyr Asp Gly Tyr Arg Leu Arg Val Glu Phe
 75 80 85
 cct cga agc ggc cgt gga aca ggc cga ggc ggc ggc ggg ggt gga ggt 402
 Pro Arg Ser Gly Arg Gly Thr Gly Arg Gly Gly Gly Gly Gly Gly Gly
 90 95 100
 ggc gga gct ccc cga ggt cgc tat ggc ccc cca tcc agg cgg tct gaa 450
 Gly Gly Ala Pro Arg Gly Arg Tyr Gly Pro Pro Ser Arg Arg Ser Glu
 105 110 115 120
 aac aga gtg gtt gtc tct gga ctg cct cca agt gga agt tgg cag gat 498
 Asn Arg Val Val Val Ser Gly Leu Pro Pro Ser Gly Ser Trp Gln Asp
 125 130 135

| | |
|---|------|
| tta aag gat cac atg cgt gaa gca ggt gat gta tgt tat gct gat gtt Leu Lys Asp His Met Arg Glu Ala Gly Asp Val Cys Tyr Ala Asp Val 140 145 150 | 546 |
| tac cga gat ggc act ggt gtc gtg gag ttt gta cgg aaa gaa gat atg Tyr Arg Asp Gly Thr Gly Val Val Glu Phe Val Arg Lys Glu Asp Met 155 160 165 | 594 |
| acc tat gca gtt cga aaa ctg gat aac act aag ttt aga tct cat gag Thr Tyr Ala Val Arg Lys Leu Asp Asn Thr Lys Phe Arg Ser His Glu 170 175 180 | 642 |
| gga gaa act gcc tac atc cgg gtt aaa gtt gat ggg ccc aga agt cca Gly Glu Thr Ala Tyr Ile Arg Val Lys Val Asp Gly Pro Arg Ser Pro 185 190 195 200 | 690 |
| agt tat gga aga tct cga tct cga agc cgt agt cgt agc aga agc cgt Ser Tyr Gly Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg 205 210 215 | 738 |
| agc aga agc aac agc agg agt cgc agt tac tcc cca agg aga agc aga Ser Arg Ser Asn Ser Arg Ser Arg Ser Tyr Ser Pro Arg Arg Ser Arg 220 225 230 | 786 |
| gga tca cca cgc tat tct ccc cgt cat agc aga tct cgc tct cgt aca Gly Ser Pro Arg Tyr Ser Pro Arg His Ser Arg Ser Arg Ser Arg Thr 235 240 245 | 834 |
| taa gatgattggt gacacttttt gtagaaccca tgttgtatac agtttttcctt | 887 |
| tattcagttac aatctttttca ttttttaatt caaactgttt tgttcagaat gggctaaagt | 947 |
| gttgaattgc attcttgtaa tatcccccttg ctccctaacat ctacattccc ttctgtgtctt | 1007 |
| tgataaattg tatttttaagt gatgtcatag acaggattgt ttaaatttag ttaactccat | 1067 |
| actcttcaga ctgtgatatt gtgtaaatgt ctatctgccc tggtttgtgt gaactgggat | 1127 |
| gttgggggtg tttgtgggta tcttacctgg ggaagttctt atgttttatct tgcttttcat | 1187 |
| gtgtctttct gtagacatat ctgaagagat ggattaagaa tgctttggat taaggattgt | 1247 |
| ggagcacatt tcaatcattt taggattgtc aaaaggagga ttgaggagga tcagatcaat | 1307 |
| aatggaggca atggtatgac tccaagtgtc attgtcacag atgaaattgg cagtattgac | 1367 |
| cttatactaa aaggcagggg ttaaaaatga ttatatacat tttccttaaa acacttgcaa | 1427 |
| acattttatt cagttgtctt tagctacaat tgctttgctt tttaaaccctt ggcaattgtg | 1487 |

| | |
|--|------|
| gcaaaattat attgccatt ttgtagcaac ttattttgct cccttcccc catttttgtt | 1547 |
| ttaataggga ctaatgtggg aagaactggc taatttgta cagtgccttag ttacaactgt | 1607 |
| taatgtgtga cctgctgttg gtgtacatgt gggtacaggg tgttttttaa tccaacaaga | 1667 |
| tagagtataa tatcaatact gctaaatctg catgtcctct gtgtgactga tagagcgttg | 1727 |
| ctatttcatt tttttaagac aaaatgaaag caaatatag agttccaatg tattggtgta | 1787 |
| gataatctag ttgggaatac ttttaagtct caccttcccc tttaaactaa tattcataat | 1847 |
| tggttcatat gtttaaaaga ctttaattta caaattaaat tgcaaattggg agcattagat | 1907 |
| ttagtttttag acttaggtgg gtagcaatgc cagtaaactt aaattacgta acttccttgc | 1967 |
| accacgaaac ctgtaatacg ctgtacagta acaagtgttg gcattatcag ttgaactgta | 2027 |
| aatacaaaat gcttcttcca attagtctct atgatgatta agtttctaaa atttatctga | 2087 |
| acaccattca gaaacttggt ttggggaatt tgatagttat tgatgtgcat ctgttaaact | 2147 |
| gatgacagac ataactcacc attccccaga aacctttttt gattacagta tctaaccatt | 2207 |
| tgccctctct tttttggttt tgctggttat aaaggtttgg attggagagg gctcactgga | 2267 |
| tcccaatcct tggagctgga tcattggatt caaatcataa tgtggatagg ataggaggga | 2327 |
| tgaattaccc aggattcatg gagcgggatc agattaccag gaacatagga gtggattcct | 2387 |
| gccccacca aaccgcattc gtgtggattt ttttattcaa cttaattggc tattccaaag | 2447 |
| atTTTTTTTT tcctattttt gacgattgga gcccttaaga tgcacgatgg aattgtgttt | 2507 |
| tgcgtTTTTT ggtaaaagga gcaaagcgag gacctggaga taaacgctgg agcaatctcc | 2567 |
| ttggaaggat tcagcacgag tagatggtaa acatttaaag gggaaagggg gggtttgttt | 2627 |
| aaaatagtaa atcagtaagt cacttctaaa tttaaagaaa acaaaattgg agttgaagaa | 2687 |
| taagtaggtt tccaattggc tattgccgtt ttctttgaaa aaataaacat tttttaaaaa | 2747 |
| actaaaaaaaa aaaaaaaaa | 2765 |

<210> 28
 <211> 248
 <212> PRT
 <213> Homo sapiens

<400> 28

Met Ser Gly Gly Gly Val Ile Arg Gly Pro Ala Gly Asn Asn Asp Cys
1 5 10 15

Arg Ile Tyr Val Gly Asn Leu Pro Pro Asp Ile Arg Thr Lys Asp Ile
20 25 30

Glu Asp Val Phe Tyr Lys Tyr Gly Ala Ile Arg Asp Ile Asp Leu Lys
35 40 45

Asn Arg Arg Gly Gly Pro Pro Phe Ala Phe Val Glu Phe Glu Asp Pro
50 55 60

Arg Asp Ala Glu Asp Ala Val Tyr Gly Arg Asp Gly Tyr Asp Tyr Asp
65 70 75 80

Gly Tyr Arg Leu Arg Val Glu Phe Pro Arg Ser Gly Arg Gly Thr Gly
85 90 95

Arg Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Pro Arg Gly Arg Tyr
100 105 110

Gly Pro Pro Ser Arg Arg Ser Glu Asn Arg Val Val Val Ser Gly Leu
115 120 125

Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys Asp His Met Arg Glu Ala
130 135 140

Gly Asp Val Cys Tyr Ala Asp Val Tyr Arg Asp Gly Thr Gly Val Val
145 150 155 160

Glu Phe Val Arg Lys Glu Asp Met Thr Tyr Ala Val Arg Lys Leu Asp
165 170 175

Asn Thr Lys Phe Arg Ser His Glu Gly Glu Thr Ala Tyr Ile Arg Val
180 185 190

Lys Val Asp Gly Pro Arg Ser Pro Ser Tyr Gly Arg Ser Arg Ser Arg
 195 200 205

Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Asn Ser Arg Ser Arg
 210 215 220

Ser Tyr Ser Pro Arg Arg Ser Arg Gly Ser Pro Arg Tyr Ser Pro Arg
 225 230 235 240

His Ser Arg Ser Arg Ser Arg Thr
 245

<210> 29
 <211> 1167
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (73).. (966)
 <223>

<400> 29
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 agagctgaag cc atg gtt cat cag gtg ctc tac cgg gcg ctg gtc tcc acc 111
 Met Val His Gln Val Leu Tyr Arg Ala Leu Val Ser Thr
 1 5 10
 aag tgg ctg gcg gag tcc atc agg act ggc aag ctg ggg ccc ggc ctg 159
 Lys Trp Leu Ala Glu Ser Ile Arg Thr Gly Lys Leu Gly Pro Gly Leu
 15 20 25
 cgg gtg ctg gac gcg tcc tgg tac tca cca ggc acc cga gag gcc cgc 207
 Arg Val Leu Asp Ala Ser Trp Tyr Ser Pro Gly Thr Arg Glu Ala Arg
 30 35 40 45
 aag gag tac ctc gag cgc cac gta ccc ggc gcc tct ttc ttt gac ata 255
 Lys Glu Tyr Leu Glu Arg His Val Pro Gly Ala Ser Phe Phe Asp Ile
 50 55 60
 gaa gag tgc cgg gac acg gcg tcg ccc tac gag atg atg ctg ccc agc 303
 Glu Glu Cys Arg Asp Thr Ala Ser Pro Tyr Glu Met Met Leu Pro Ser
 65 70 75
 gag gct ggc ttc gcc gag tat gtg ggc cgc ctg ggc atc agc aac cac 351
 84/201

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Ala | Gly | Phe | Ala | Glu | Tyr | Val | Gly | Arg | Leu | Gly | Ile | Ser | Asn | His | | |
| | 80 | | | | | | 85 | | | | | 90 | | | | | |
| acg | cac | gtg | gtg | gtg | tat | gat | ggg | gaa | cac | ctg | ggc | agc | ttc | tat | gct | 399 | |
| Thr | His | Val | Val | Val | Tyr | Asp | Gly | Glu | His | Leu | Gly | Ser | Phe | Tyr | Ala | | |
| | 95 | | | | | 100 | | | | | 105 | | | | | | |
| ccc | cgg | gtc | tgg | tgg | atg | ttc | cgt | gtg | ttt | ggc | cac | cgc | acc | gta | tca | 447 | |
| Pro | Arg | Val | Trp | Trp | Met | Phe | Arg | Val | Phe | Gly | His | Arg | Thr | Val | Ser | | |
| 110 | | | | | 115 | | | | | 120 | | | | | 125 | | |
| gtg | ctc | aat | ggg | ggc | ttc | cgg | aac | tgg | ctg | aag | gag | ggc | cac | ccg | gtg | 495 | |
| Val | Leu | Asn | Gly | Gly | Phe | Arg | Asn | Trp | Leu | Lys | Glu | Gly | His | Pro | Val | | |
| | | | 130 | | | | | | 135 | | | | | 140 | | | |
| aca | tcc | gag | ccc | tca | cgc | cca | gaa | ccg | gcc | gtc | ttc | aaa | gcc | aca | ctg | 543 | |
| Thr | Ser | Glu | Pro | Ser | Arg | Pro | Glu | Pro | Ala | Val | Phe | Lys | Ala | Thr | Leu | | |
| | | | 145 | | | | | 150 | | | | | 155 | | | | |
| gac | cgc | tcc | ctg | ctc | aag | acc | tac | gag | cag | gtg | ctg | gag | aac | ctt | gaa | 591 | |
| Asp | Arg | Ser | Leu | Leu | Lys | Thr | Tyr | Glu | Gln | Val | Leu | Glu | Asn | Leu | Glu | | |
| | | 160 | | | | | 165 | | | | | 170 | | | | | |
| tct | aag | agg | ttc | cag | ctg | gtg | gat | tca | agg | tct | caa | ggg | cgg | ttc | ctg | 639 | |
| Ser | Lys | Arg | Phe | Gln | Leu | Val | Asp | Ser | Arg | Ser | Gln | Gly | Arg | Phe | Leu | | |
| | 175 | | | | | 180 | | | | | 185 | | | | | | |
| ggc | acc | gag | ccg | gag | ccg | gat | gca | gta | gga | ctg | gac | tcg | ggc | cat | atc | 687 | |
| Gly | Thr | Glu | Pro | Glu | Pro | Asp | Ala | Val | Gly | Leu | Asp | Ser | Gly | His | Ile | | |
| 190 | | | | | 195 | | | | | 200 | | | | | 205 | | |
| cgt | ggg | gcc | gtc | aac | atg | cct | ttc | atg | gac | ttc | ctg | act | gag | gat | ggc | 735 | |
| Arg | Gly | Ala | Val | Asn | Met | Pro | Phe | Met | Asp | Phe | Leu | Thr | Glu | Asp | Gly | | |
| | | | 210 | | | | | | 215 | | | | | 220 | | | |
| ttc | gag | aag | ggc | cca | gaa | gag | ctc | cgt | gct | ctg | ttc | cag | acc | aag | aag | 783 | |
| Phe | Glu | Lys | Gly | Pro | Glu | Glu | Leu | Arg | Ala | Leu | Phe | Gln | Thr | Lys | Lys | | |
| | | | 225 | | | | | 230 | | | | | 235 | | | | |
| gtg | gat | ctc | tcg | cag | cct | ctc | att | gcc | acg | tgc | cgc | aag | gga | gtc | acc | 831 | |
| Val | Asp | Leu | Ser | Gln | Pro | Leu | Ile | Ala | Thr | Cys | Arg | Lys | Gly | Val | Thr | | |
| | | 240 | | | | | 245 | | | | | 250 | | | | | |
| gcc | tgc | cac | gtg | gcc | ttg | gct | gcc | tac | ctc | tgc | ggc | aag | cct | gat | gtg | 879 | |
| Ala | Cys | His | Val | Ala | Leu | Ala | Ala | Tyr | Leu | Cys | Gly | Lys | Pro | Asp | Val | | |
| | 255 | | | | | 260 | | | | | 265 | | | | | | |
| gcc | gtg | tac | gat | ggc | tcc | tgg | tcc | gag | tgg | ttt | cgc | cgg | gcc | ccc | cca | 927 | |
| Ala | Val | Tyr | Asp | Gly | Ser | Trp | Ser | Glu | Trp | Phe | Arg | Arg | Ala | Pro | Pro | | |
| 270 | | | | | 275 | | | | | 280 | | | | | 285 | | |

gag agc cgt gtg tcc cag gga aag tct gag aag gcc tga gccgtgacct 976
 Glu Ser Arg Val Ser Gln Gly Lys Ser Glu Lys Ala
 290 295

cttctgctta ctgtaactgc ggccgggttta gtgaccccat gacttacagc cggttcttac 1036

ctcttaggtg aaggagatga catgttttta gaattgctgt gcaaggctca cctctctct 1096

gtcaacactg gaataaactt tgccttttct gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1156

aaaaaaaaa a 1167

<210> 30

<211> 297

<212> PRT

<213> Homo sapiens

<400> 30

Met Val His Gln Val Leu Tyr Arg Ala Leu Val Ser Thr Lys Trp Leu
 1 5 10 15

Ala Glu Ser Ile Arg Thr Gly Lys Leu Gly Pro Gly Leu Arg Val Leu
 20 25 30

Asp Ala Ser Trp Tyr Ser Pro Gly Thr Arg Glu Ala Arg Lys Glu Tyr
 35 40 45

Leu Glu Arg His Val Pro Gly Ala Ser Phe Phe Asp Ile Glu Glu Cys
 50 55 60

Arg Asp Thr Ala Ser Pro Tyr Glu Met Met Leu Pro Ser Glu Ala Gly
 65 70 75 80

Phe Ala Glu Tyr Val Gly Arg Leu Gly Ile Ser Asn His Thr His Val
 85 90 95

Val Val Tyr Asp Gly Glu His Leu Gly Ser Phe Tyr Ala Pro Arg Val
 100 105 110

Trp Trp Met Phe Arg Val Phe Gly His Arg Thr Val Ser Val Leu Asn
 86/201

| | | |
|---|-----|-------------|
| 115 | 120 | 125 |
| Gly Gly Phe Arg Asn Trp Leu Lys Glu Gly His Pro Val Thr Ser Glu | | |
| 130 | 135 | 140 |
| Pro Ser Arg Pro Glu Pro Ala Val Phe Lys Ala Thr Leu Asp Arg Ser | | |
| 145 | 150 | 155 160 |
| Leu Leu Lys Thr Tyr Glu Gln Val Leu Glu Asn Leu Glu Ser Lys Arg | | |
| | 165 | 170 175 |
| Phe Gln Leu Val Asp Ser Arg Ser Gln Gly Arg Phe Leu Gly Thr Glu | | |
| | 180 | 185 190 |
| Pro Glu Pro Asp Ala Val Gly Leu Asp Ser Gly His Ile Arg Gly Ala | | |
| | 195 | 200 205 |
| Val Asn Met Pro Phe Met Asp Phe Leu Thr Glu Asp Gly Phe Glu Lys | | |
| | 210 | 215 220 |
| Gly Pro Glu Glu Leu Arg Ala Leu Phe Gln Thr Lys Lys Val Asp Leu | | |
| | 225 | 230 235 240 |
| Ser Gln Pro Leu Ile Ala Thr Cys Arg Lys Gly Val Thr Ala Cys His | | |
| | 245 | 250 255 |
| Val Ala Leu Ala Ala Tyr Leu Cys Gly Lys Pro Asp Val Ala Val Tyr | | |
| | 260 | 265 270 |
| Asp Gly Ser Trp Ser Glu Trp Phe Arg Arg Ala Pro Pro Glu Ser Arg | | |
| | 275 | 280 285 |
| Val Ser Gln Gly Lys Ser Glu Lys Ala | | |
| | 290 | 295 |

<210> 31
 <211> 2110
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (48)..(1346)

<223>

<400> 31

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                                         Met Ser Asp
                                         1

aaa ctg ccc tac aaa gtc gcc gac atc ggc ctg gct gcc tgg gga cgc      104
Lys Leu Pro Tyr Lys Val Ala Asp Ile Gly Leu Ala Ala Trp Gly Arg
      5              10              15

aag gcc ctg gac att gct gag aac gag atg ccg ggc ctg atg cgt atg      152
Lys Ala Leu Asp Ile Ala Glu Asn Glu Met Pro Gly Leu Met Arg Met
20              25              30              35

cgg gag cgg tac tcg gcc tcc aag cca ctg aag ggc gcc cgc atc gct      200
Arg Glu Arg Tyr Ser Ala Ser Lys Pro Leu Lys Gly Ala Arg Ile Ala
              40              45              50

ggc tgc ctg cac atg acc gtg gag acg gcc gtc ctc att gag acc ctc      248
Gly Cys Leu His Met Thr Val Glu Thr Ala Val Leu Ile Glu Thr Leu
              55              60              65

gtc acc ctg ggt gct gag gtg cag tgg tcc agc tgc aac atc ttc tcc      296
Val Thr Leu Gly Ala Glu Val Gln Trp Ser Ser Cys Asn Ile Phe Ser
      70              75              80

acc cag gac cat gcg gcg gct gcc att gcc aag gct ggc att ccg gtg      344
Thr Gln Asp His Ala Ala Ala Ala Ile Ala Lys Ala Gly Ile Pro Val
      85              90              95

tat gcc tgg aag ggc gaa acg gac gag gag tac ctg tgg tgc att gag      392
Tyr Ala Trp Lys Gly Glu Thr Asp Glu Glu Tyr Leu Trp Cys Ile Glu
100              105              110              115

cag acc ctg tac ttc aag gac ggg ccc ctc aac atg att ctg gac gac      440
Gln Thr Leu Tyr Phe Lys Asp Gly Pro Leu Asn Met Ile Leu Asp Asp
              120              125              130

ggg ggc gac ctc acc aac ctc atc cac acc aag tac ccg cag ctt ctg      488
Gly Gly Asp Leu Thr Asn Leu Ile His Thr Lys Tyr Pro Gln Leu Leu
      135              140              145

cca ggc atc cga ggc atc tct gag gag acc acg act ggg gtc cac aac      536
Pro Gly Ile Arg Gly Ile Ser Glu Glu Thr Thr Thr Gly Val His Asn
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| 150 | 155 | 160 | |
|---|-----|-----|------|
| ctc tac aag atg atg gcc aat ggg atc ctc aag gtg cct gcc atc aat Leu Tyr Lys Met Met Ala Asn Gly Ile Leu Lys Val Pro Ala Ile Asn 165 170 175 | | | 584 |
| gtc aat gac tcc gtc acc aag agc aag ttt gac aac ctc tat ggc tgc Val Asn Asp Ser Val Thr Lys Ser Lys Phe Asp Asn Leu Tyr Gly Cys 180 185 190 195 | | | 632 |
| cgg gag tcc ctc ata gat ggc atc aag cgg gcc aca gat gtg atg att Arg Glu Ser Leu Ile Asp Gly Ile Lys Arg Ala Thr Asp Val Met Ile 200 205 210 | | | 680 |
| gcc ggc aag gta gcg gtg gta gca ggc tat ggt gat gtg ggc aag ggc Ala Gly Lys Val Ala Val Val Ala Gly Tyr Gly Asp Val Gly Lys Gly 215 220 225 | | | 728 |
| tgt gcc cag gcc ctg cgg ggt ttc gga gcc cgc gtc atc atc acc gag Cys Ala Gln Ala Leu Arg Gly Phe Gly Ala Arg Val Ile Ile Thr Glu 230 235 240 | | | 776 |
| att gac ccc atc aac gca ctg cag gct gcc atg gag ggc tat gag gtg Ile Asp Pro Ile Asn Ala Leu Gln Ala Ala Met Glu Gly Tyr Glu Val 245 250 255 | | | 824 |
| acc acc atg gat gag gcc tgt cag gag ggc aac atc ttt gtc acc acc Thr Thr Met Asp Glu Ala Cys Gln Glu Gly Asn Ile Phe Val Thr Thr 260 265 270 275 | | | 872 |
| aca ggc tgt att gac atc atc ctt ggc cgg cac ttt gag cag atg aag Thr Gly Cys Ile Asp Ile Ile Leu Gly Arg His Phe Glu Gln Met Lys 280 285 290 | | | 920 |
| gat gat gcc att gtg tgt aac att gga cac ttt gac gtg gag atc gat Asp Asp Ala Ile Val Cys Asn Ile Gly His Phe Asp Val Glu Ile Asp 295 300 305 | | | 968 |
| gtc aag tgg ctc aac gag aac gcc gtg gag aag gtg aac atc aag ccg Val Lys Trp Leu Asn Glu Asn Ala Val Glu Lys Val Asn Ile Lys Pro 310 315 320 | | | 1016 |
| cag gtg gac cgg tat cgg ttg aag aat ggg cgc cgc atc atc ctg ctg Gln Val Asp Arg Tyr Arg Leu Lys Asn Gly Arg Arg Ile Ile Leu Leu 325 330 335 | | | 1064 |
| gcc gag ggt cgg ctg gtc aac ctg ggt tgt gcc atg ggc cac ccc agc Ala Glu Gly Arg Leu Val Asn Leu Gly Cys Ala Met Gly His Pro Ser 340 345 350 355 | | | 1112 |

| | |
|--|------|
| ttc gtg atg agt aac tcc ttc acc aac cag gtg atg gcg cag atc gag | 1160 |
| Phe Val Met Ser Asn Ser Phe Thr Asn Gln Val Met Ala Gln Ile Glu | |
| 360 365 370 | |
| ctg tgg acc cat cca gac aag tac ccc gtt ggg gtt cat ttc ctg ccc | 1208 |
| Leu Trp Thr His Pro Asp Lys Tyr Pro Val Gly Val His Phe Leu Pro | |
| 375 380 385 | |
| aag aag ctg gat gag gca gtg gct gaa gcc cac ctg ggc aag ctg aat | 1256 |
| Lys Lys Leu Asp Glu Ala Val Ala Glu Ala His Leu Gly Lys Leu Asn | |
| 390 395 400 | |
| gtg aag ttg acc aag cta act gag aag caa gcc cag tac ctg ggc atg | 1304 |
| Val Lys Leu Thr Lys Leu Thr Glu Lys Gln Ala Gln Tyr Leu Gly Met | |
| 405 410 415 | |
| tcc tgt gat ggc ccc ttc aag ccg gat cac tac cgc tac tga | 1346 |
| Ser Cys Asp Gly Pro Phe Lys Pro Asp His Tyr Arg Tyr | |
| 420 425 430 | |
| gagccaggtc tgcgtttcac cctccagctg ctgtccttgc ccaggcccca cctctcctcc | 1406 |
| ctaagagcta atggcaccaa ctttgtgact ggtttgtcag tgccccccat cgactctctg | 1466 |
| gggctgatca cttagttttt ggccctctgct gcagccgtca tactgttcca aatgtggcag | 1526 |
| cgggaaacaga gtaccctctt caagccccgg tcatgatgga ggtcccagcc acagggaacc | 1586 |
| atgagctcag tggctcttga acagctcact aagtcagtcc ttccttagcc tggaagccag | 1646 |
| tagtggagtc acaaagccca tgtgttttgc catctaggcc ttcacctggt ctgtggactt | 1706 |
| atacctgtgt gcttggttta caggtccagt ggttcttcag cccatgacag atgagaaggg | 1766 |
| gctatatatga agggcaaaga ggaactgttg tttgaatttt cctgagagcc tggcttagtg | 1826 |
| ctgggccttc tcttaaacct cattacaatg aggttagtac ttttagtccc tgttttacag | 1886 |
| gggttagaat agactgttaa ggggcaactg agaaagaaca gagaagtgac agctaggggt | 1946 |
| tgagaggggc cagaaaaaca tgaatgcagg cagatttcgt gaaatctgcc accactttat | 2006 |
| aaccagatgg ttcctttcac aaccctgggt caaaaagaga ataatttggc ctataatgtt | 2066 |
| aaaagaaagc aggaaggtgg gtaaataaaa atcttgggtgc ctgg | 2110 |

<210> 32
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<213> Homo sapiens

<400> 32

Met Ser Asp Lys Leu Pro Tyr Lys Val Ala Asp Ile Gly Leu Ala Ala
1 5 10 15

Trp Gly Arg Lys Ala Leu Asp Ile Ala Glu Asn Glu Met Pro Gly Leu
20 25 30

Met Arg Met Arg Glu Arg Tyr Ser Ala Ser Lys Pro Leu Lys Gly Ala
35 40 45

Arg Ile Ala Gly Cys Leu His Met Thr Val Glu Thr Ala Val Leu Ile
50 55 60

Glu Thr Leu Val Thr Leu Gly Ala Glu Val Gln Trp Ser Ser Cys Asn
65 70 75 80

Ile Phe Ser Thr Gln Asp His Ala Ala Ala Ala Ile Ala Lys Ala Gly
85 90 95

Ile Pro Val Tyr Ala Trp Lys Gly Glu Thr Asp Glu Glu Tyr Leu Trp
100 105 110

Cys Ile Glu Gln Thr Leu Tyr Phe Lys Asp Gly Pro Leu Asn Met Ile
115 120 125

Leu Asp Asp Gly Gly Asp Leu Thr Asn Leu Ile His Thr Lys Tyr Pro
130 135 140

Gln Leu Leu Pro Gly Ile Arg Gly Ile Ser Glu Glu Thr Thr Thr Gly
145 150 155 160

Val His Asn Leu Tyr Lys Met Met Ala Asn Gly Ile Leu Lys Val Pro
165 170 175

Ala Ile Asn Val Asn Asp Ser Val Thr Lys Ser Lys Phe Asp Asn Leu
180 185 190

Tyr Gly Cys Arg Glu Ser Leu Ile Asp Gly Ile Lys Arg Ala Thr Asp
195 200 205

Val Met Ile Ala Gly Lys Val Ala Val Val Ala Gly Tyr Gly Asp Val
210 215 220

Gly Lys Gly Cys Ala Gln Ala Leu Arg Gly Phe Gly Ala Arg Val Ile
225 230 235 240

Ile Thr Glu Ile Asp Pro Ile Asn Ala Leu Gln Ala Ala Met Glu Gly
245 250 255

Tyr Glu Val Thr Thr Met Asp Glu Ala Cys Gln Glu Gly Asn Ile Phe
260 265 270

Val Thr Thr Thr Gly Cys Ile Asp Ile Ile Leu Gly Arg His Phe Glu
275 280 285

Gln Met Lys Asp Asp Ala Ile Val Cys Asn Ile Gly His Phe Asp Val
290 295 300

Glu Ile Asp Val Lys Trp Leu Asn Glu Asn Ala Val Glu Lys Val Asn
305 310 315 320

Ile Lys Pro Gln Val Asp Arg Tyr Arg Leu Lys Asn Gly Arg Arg Ile
325 330 335

Ile Leu Leu Ala Glu Gly Arg Leu Val Asn Leu Gly Cys Ala Met Gly
340 345 350

His Pro Ser Phe Val Met Ser Asn Ser Phe Thr Asn Gln Val Met Ala
355 360 365

Gln Ile Glu Leu Trp Thr His Pro Asp Lys Tyr Pro Val Gly Val His
370 375 380

Phe Leu Pro Lys Lys Leu Asp Glu Ala Val Ala Glu Ala His Leu Gly
 385 390 395 400

Lys Leu Asn Val Lys Leu Thr Lys Leu Thr Glu Lys Gln Ala Gln Tyr
 405 410 415

Leu Gly Met Ser Cys Asp Gly Pro Phe Lys Pro Asp His Tyr Arg Tyr
 420 425 430

<210> 33
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<220>
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 <223>

<400> 33
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 ttctgcccgg caccgcgctt gccctctgcc gcgctccgcc ctgccgccga cgcacgccc 180
 gccgcgggac atg gca cac gca ccg gca cgc tgc ccc agc gcc cgg ggc 229
 Met Ala His Ala Pro Ala Arg Cys Pro Ser Ala Arg Gly
 1 5 10
 tcc ggg gac ggc gag atg ggc aag ccc agg aac gtg gcg ctc atc acc 277
 Ser Gly Asp Gly Glu Met Gly Lys Pro Arg Asn Val Ala Leu Ile Thr
 15 20 25
 ggt atc aca ggc cag gat ggt tcc tac ctg gct gag ttc ctg ctg gag 325
 Gly Ile Thr Gly Gln Asp Gly Ser Tyr Leu Ala Glu Phe Leu Leu Glu
 30 35 40 45
 aaa ggc tat gag gtc cat gga att gta cgg cgg tcc agt tca ttt aat 373
 Lys Gly Tyr Glu Val His Gly Ile Val Arg Arg Ser Ser Ser Phe Asn
 50 55 60
 acg ggt cga att gag cat ctg tat aag aat ccc cag gct cac att gaa 421
 Thr Gly Arg Ile Glu His Leu Tyr Lys Asn Pro Gln Ala His Ile Glu
 65 70 75
 gga aac atg aag ttg cac tat ggc gat ctc act gac agt acc tgc ctt 469

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Gly | Asn | Met | Lys | Leu | His | Tyr | Gly | Asp | Leu | Thr | Asp | Ser | Thr | Cys | Leu | |
| | 80 | | | | | | 85 | | | | | 90 | | | | |
| gtg | aag | atc | att | aat | gaa | gta | aag | ccc | aca | gag | atc | tac | aac | ctt | gga | 517 |
| Val | Lys | Ile | Ile | Asn | Glu | Val | Lys | Pro | Thr | Glu | Ile | Tyr | Asn | Leu | Gly | |
| | 95 | | | | | 100 | | | | | 105 | | | | | |
| gcc | cag | agc | cac | gtc | aaa | att | tcc | ttt | gac | ctc | gct | gag | tac | act | gcg | 565 |
| Ala | Gln | Ser | His | Val | Lys | Ile | Ser | Phe | Asp | Leu | Ala | Glu | Tyr | Thr | Ala | |
| 110 | | | | | 115 | | | | | 120 | | | | | 125 | |
| gac | gtt | gac | gga | gtt | ggc | act | cta | cga | ctt | cta | gat | gca | gtt | aag | act | 613 |
| Asp | Val | Asp | Gly | Val | Gly | Thr | Leu | Arg | Leu | Leu | Asp | Ala | Val | Lys | Thr | |
| | | | | 130 | | | | | 135 | | | | | 140 | | |
| tgt | ggc | ctt | atc | aac | tct | gtg | aag | ttc | tac | caa | gcc | tca | aca | agt | gaa | 661 |
| Cys | Gly | Leu | Ile | Asn | Ser | Val | Lys | Phe | Tyr | Gln | Ala | Ser | Thr | Ser | Glu | |
| | | | 145 | | | | | 150 | | | | | 155 | | | |
| ctt | tat | ggg | aaa | gtg | cag | gaa | ata | ccc | cag | aag | gag | acc | acc | cct | ttc | 709 |
| Leu | Tyr | Gly | Lys | Val | Gln | Glu | Ile | Pro | Gln | Lys | Glu | Thr | Thr | Pro | Phe | |
| | | 160 | | | | | 165 | | | | | 170 | | | | |
| tat | ccc | cgg | tca | ccc | tat | ggg | gca | gca | aaa | ctc | tat | gcc | tat | tgg | att | 757 |
| Tyr | Pro | Arg | Ser | Pro | Tyr | Gly | Ala | Ala | Lys | Leu | Tyr | Ala | Tyr | Trp | Ile | |
| | 175 | | | | | 180 | | | | | 185 | | | | | |
| gtg | gtg | aac | ttc | cgt | gag | gcg | tat | aat | ctc | ttt | gca | gtg | aac | ggc | att | 805 |
| Val | Val | Asn | Phe | Arg | Glu | Ala | Tyr | Asn | Leu | Phe | Ala | Val | Asn | Gly | Ile | |
| 190 | | | | | 195 | | | | | 200 | | | | 205 | | |
| ctc | ttc | aat | cat | gag | agt | ccc | aga | aga | gga | gct | aat | ttc | gtt | act | cga | 853 |
| Leu | Phe | Asn | His | Glu | Ser | Pro | Arg | Arg | Gly | Ala | Asn | Phe | Val | Thr | Arg | |
| | | | | 210 | | | | | 215 | | | | 220 | | | |
| aaa | att | agc | cgg | tca | gta | gct | aag | att | tac | ctt | gga | caa | ctg | gaa | tgt | 901 |
| Lys | Ile | Ser | Arg | Ser | Val | Ala | Lys | Ile | Tyr | Leu | Gly | Gln | Leu | Glu | Cys | |
| | | | 225 | | | | | 230 | | | | 235 | | | | |
| ttc | agt | ttg | gga | aat | ctg | gat | gcc | aaa | cga | gat | tgg | ggc | cat | gcc | aag | 949 |
| Phe | Ser | Leu | Gly | Asn | Leu | Asp | Ala | Lys | Arg | Asp | Trp | Gly | His | Ala | Lys | |
| | | 240 | | | | | 245 | | | | | 250 | | | | |
| gac | tat | gtg | gag | gct | atg | tgg | ttg | atg | ttg | cag | aat | gat | gag | ccg | gag | 997 |
| Asp | Tyr | Val | Glu | Ala | Met | Trp | Leu | Met | Leu | Gln | Asn | Asp | Glu | Pro | Glu | |
| | 255 | | | | | 260 | | | | | 265 | | | | | |
| gac | ttc | gtt | ata | gct | act | ggg | gag | gtc | cat | agt | gtc | cgg | gaa | ttt | gtc | 1045 |
| Asp | Phe | Val | Ile | Ala | Thr | Gly | Glu | Val | His | Ser | Val | Arg | Glu | Phe | Val | |
| 270 | | | | | 275 | | | | | 280 | | | | | 285 | |

gag aaa tca ttc ttg cac att gga aaa acc att gtg tgg gaa gga aag 1093
 Glu Lys Ser Phe Leu His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys
 290 295 300

aat gaa aat gaa gtg ggc aga tgt aaa gag acc ggc aaa gtt cac gtg 1141
 Asn Glu Asn Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Val His Val
 305 310 315

act gtg gat ctc aag tac tac cgg cca act gaa gtg gac ttt ctg cag 1189
 Thr Val Asp Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln
 320 325 330

ggc gac tgc acc aaa gcg aaa cag aag ctg aac tgg aag ccc cgg gtc 1237
 Gly Asp Cys Thr Lys Ala Lys Gln Lys Leu Asn Trp Lys Pro Arg Val
 335 340 345

gct ttc gat gag ctg gtg agg gag atg gtg cac gcc gac gtg gag ctc 1285
 Ala Phe Asp Glu Leu Val Arg Glu Met Val His Ala Asp Val Glu Leu
 350 355 360 365

atg agg aca aac ccc aat gcc tga gcagcgcctc ggagcccggc ccgccctccg 1339
 Met Arg Thr Asn Pro Asn Ala
 370

gctacaatcc ccgcagagtc tccggtgcag acgcgctgcg gggatgggga gcggcgtgcc 1399

aatctgcggg tcccctgcgg cccctgctgc cgctgcgctg tcccggccgc aagagcgggg 1459

ccgccccgcc gaggtttgta gcagccggga tgtgaccctc cagggtttgg gtcgctttgc 1519

gtttgtcgaa gcctcctctg aatggctttg tgaaatcaag atgttttaac cacattcact 1579

ttacttgaaa ttatgttggt acacaacaaa ttgtggggcc ttcaaattgt ttttctcttt 1639

tcatattaaa aatggtcttt ctgtgaacta gcaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1698

<210> 34

<211> 372

<212> PRT

<213> Homo sapiens

<400> 34

Met Ala His Ala Pro Ala Arg Cys Pro Ser Ala Arg Gly Ser Gly Asp
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Gly Glu Met Gly Lys Pro Arg Asn Val Ala Leu Ile Thr Gly Ile Thr

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | 20 | | 25 | | 30 | | | | | | | | | | | | | | |
| Gly | Gln | Asp | Gly | Ser | Tyr | Leu | Ala | Glu | Phe | Leu | Leu | Glu | Lys | Gly | Tyr | | | | |
| | 35 | | | | | | 40 | | | | | 45 | | | | | | | |
| Glu | Val | His | Gly | Ile | Val | Arg | Arg | Ser | Ser | Ser | Phe | Asn | Thr | Gly | Arg | | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | | | |
| Ile | Glu | His | Leu | Tyr | Lys | Asn | Pro | Gln | Ala | His | Ile | Glu | Gly | Asn | Met | | | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | | | |
| Lys | Leu | His | Tyr | Gly | Asp | Leu | Thr | Asp | Ser | Thr | Cys | Leu | Val | Lys | Ile | | | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | | | |
| Ile | Asn | Glu | Val | Lys | Pro | Thr | Glu | Ile | Tyr | Asn | Leu | Gly | Ala | Gln | Ser | | | | |
| | | 100 | | | | | | 105 | | | | | | 110 | | | | | |
| His | Val | Lys | Ile | Ser | Phe | Asp | Leu | Ala | Glu | Tyr | Thr | Ala | Asp | Val | Asp | | | | |
| | 115 | | | | | | 120 | | | | | 125 | | | | | | | |
| Gly | Val | Gly | Thr | Leu | Arg | Leu | Leu | Asp | Ala | Val | Lys | Thr | Cys | Gly | Leu | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | | | |
| Ile | Asn | Ser | Val | Lys | Phe | Tyr | Gln | Ala | Ser | Thr | Ser | Glu | Leu | Tyr | Gly | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Lys | Val | Gln | Glu | Ile | Pro | Gln | Lys | Glu | Thr | Thr | Pro | Phe | Tyr | Pro | Arg | | | | |
| | | | | 165 | | | | | 170 | | | | | | 175 | | | | |
| Ser | Pro | Tyr | Gly | Ala | Ala | Lys | Leu | Tyr | Ala | Tyr | Trp | Ile | Val | Val | Asn | | | | |
| | | 180 | | | | | | 185 | | | | | 190 | | | | | | |
| Phe | Arg | Glu | Ala | Tyr | Asn | Leu | Phe | Ala | Val | Asn | Gly | Ile | Leu | Phe | Asn | | | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | | | |
| His | Glu | Ser | Pro | Arg | Arg | Gly | Ala | Asn | Phe | Val | Thr | Arg | Lys | Ile | Ser | | | | |
| 210 | | | | | | 215 | | | | | 220 | | | | | | | | |

Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys Phe Ser Leu
225 230 235 240

Gly Asn Leu Asp Ala Lys Arg Asp Trp Gly His Ala Lys Asp Tyr Val
245 250 255

Glu Ala Met Trp Leu Met Leu Gln Asn Asp Glu Pro Glu Asp Phe Val
260 265 270

Ile Ala Thr Gly Glu Val His Ser Val Arg Glu Phe Val Glu Lys Ser
275 280 285

Phe Leu His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys Asn Glu Asn
290 295 300

Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Val His Val Thr Val Asp
305 310 315 320

Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln Gly Asp Cys
325 330 335

Thr Lys Ala Lys Gln Lys Leu Asn Trp Lys Pro Arg Val Ala Phe Asp
340 345 350

Glu Leu Val Arg Glu Met Val His Ala Asp Val Glu Leu Met Arg Thr
355 360 365

Asn Pro Asn Ala
370

<210> 35
<211> 2963
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (26)..(2317)
<223>

<400> 35

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| ccactgctgt cctcttcagc tcaag atg gtg gcc tgc cgg gcg att ggc atc | 52 |
| Met Val Ala Cys Arg Ala Ile Gly Ile | |
| 1 5 | |
| ctc agc cgc ttt tct gcc ttc agg atc ctc cgc tcc cga ggt tat ata | 100 |
| Leu Ser Arg Phe Ser Ala Phe Arg Ile Leu Arg Ser Arg Gly Tyr Ile | |
| 10 15 20 25 | |
| tgc cgc aat ttt aca ggg tct tct gct ttg ctg acc aga acc cat att | 148 |
| Cys Arg Asn Phe Thr Gly Ser Ser Ala Leu Leu Thr Arg Thr His Ile | |
| 30 35 40 | |
| aac tat gga gtc aaa ggg gat gtg gca gtt gtt cga att aac tct ccc | 196 |
| Asn Tyr Gly Val Lys Gly Asp Val Ala Val Val Arg Ile Asn Ser Pro | |
| 45 50 55 | |
| aat tca aag gta aat aca ctg agt aaa gag cta cat tca gag ttc tca | 244 |
| Asn Ser Lys Val Asn Thr Leu Ser Lys Glu Leu His Ser Glu Phe Ser | |
| 60 65 70 | |
| gaa gtt atg aat gaa atc tgg gct agt gat caa atc aga agt gcc gtc | 292 |
| Glu Val Met Asn Glu Ile Trp Ala Ser Asp Gln Ile Arg Ser Ala Val | |
| 75 80 85 | |
| ctt atc tca tca aag cca ggc tgc ttt att gca ggt gct gat atc aac | 340 |
| Leu Ile Ser Ser Lys Pro Gly Cys Phe Ile Ala Gly Ala Asp Ile Asn | |
| 90 95 100 105 | |
| atg tta gcc gct tgc aag acc ctt caa gaa gta aca cag cta tca caa | 388 |
| Met Leu Ala Ala Cys Lys Thr Leu Gln Glu Val Thr Gln Leu Ser Gln | |
| 110 115 120 | |
| gaa gca cag aga ata gtt gag aaa ctt gaa aag tcc aca aag cct att | 436 |
| Glu Ala Gln Arg Ile Val Glu Lys Leu Glu Lys Ser Thr Lys Pro Ile | |
| 125 130 135 | |
| gtg gct gcc atc aat gga tcc tgc ctg gga gga gga ctt gag gtt gcc | 484 |
| Val Ala Ala Ile Asn Gly Ser Cys Leu Gly Gly Gly Leu Glu Val Ala | |
| 140 145 150 | |
| att tca tgc caa tac aga ata gca aca aaa gac aga aaa aca gta tta | 532 |
| Ile Ser Cys Gln Tyr Arg Ile Ala Thr Lys Asp Arg Lys Thr Val Leu | |
| 155 160 165 | |
| ggt acc cct gaa gtt ttg ctg ggg gcc tta cca gga gca gga ggc aca | 580 |
| Gly Thr Pro Glu Val Leu Leu Gly Ala Leu Pro Gly Ala Gly Gly Thr | |
| 170 175 180 185 | |

| | |
|---|------|
| caa agg ctg ccc aaa atg gtg ggt gtg cct gct gct ttg gac atg atg Gln Arg Leu Pro Lys Met Val Gly Val Pro Ala Ala Leu Asp Met Met 190 195 200 | 628 |
| ctg act ggt aga agc att cgt gca gac agg gca aag aaa atg gga ctg Leu Thr Gly Arg Ser Ile Arg Ala Asp Arg Ala Lys Lys Met Gly Leu 205 210 215 | 676 |
| gtt gac caa ctg gtg gaa ccc ctg gga cca gga cta aaa cct cca gag Val Asp Gln Leu Val Glu Pro Leu Gly Pro Gly Leu Lys Pro Pro Glu 220 225 230 | 724 |
| gaa cgg aca ata gaa tac cta gaa gaa gtt gca att act ttt gcc aaa Glu Arg Thr Ile Glu Tyr Leu Glu Glu Val Ala Ile Thr Phe Ala Lys 235 240 245 | 772 |
| gga cta gct gat aag aag atc tct cca aag aga gac aag gga ttg gtg Gly Leu Ala Asp Lys Lys Ile Ser Pro Lys Arg Asp Lys Gly Leu Val 250 255 260 265 | 820 |
| gaa aaa ttg aca gcg tat gcc atg act att cca ttt gtc agg caa cag Glu Lys Leu Thr Ala Tyr Ala Met Thr Ile Pro Phe Val Arg Gln Gln 270 275 280 | 868 |
| gtt tac aaa aaa gtg gaa gaa aaa gtg cga aag cag act aaa ggc ctt Val Tyr Lys Lys Val Glu Glu Lys Val Arg Lys Gln Thr Lys Gly Leu 285 290 295 | 916 |
| tat cct gca cct ctg aaa ata att gat gtg gta aag act gga att gag Tyr Pro Ala Pro Leu Lys Ile Ile Asp Val Val Lys Thr Gly Ile Glu 300 305 310 | 964 |
| caa ggg agt gat gcc ggt tat ctc tgt gaa tct cag aaa ttt gga gag Gln Gly Ser Asp Ala Gly Tyr Leu Cys Glu Ser Gln Lys Phe Gly Glu 315 320 325 | 1012 |
| ctt gta atg acc aaa gaa tca aag gcc ttg atg gga ctc tac cat ggt Leu Val Met Thr Lys Glu Ser Lys Ala Leu Met Gly Leu Tyr His Gly 330 335 340 345 | 1060 |
| cag gtc ctg tgc aag aag aat aaa ttt gga gct cca cag aag gat gtt Gln Val Leu Cys Lys Lys Asn Lys Phe Gly Ala Pro Gln Lys Asp Val 350 355 360 | 1108 |
| aag cat ctg gct att ctt ggt gca ggg ctg atg gga gca ggc atc gcc Lys His Leu Ala Ile Leu Gly Ala Gly Leu Met Gly Ala Gly Ile Ala 365 370 375 | 1156 |
| caa gtc tcc gtg gat aag ggg cta aag act ata ctt aaa gat gcc acc Gln Val Ser Val Asp Lys Gly Leu Lys Thr Ile Leu Lys Asp Ala Thr 99/201 | 1204 |

| 380 | 385 | 390 | |
|---|-----|-----|------|
| ctc act gcg cta gac cga gga cag caa caa gtg ttc aaa gga ttg aat | | | 1252 |
| Leu Thr Ala Leu Asp Arg Gly Gln Gln Gln Val Phe Lys Gly Leu Asn | | | |
| 395 | 400 | 405 | |
| gac aaa gtg aag aag aaa gct cta aca tca ttt gaa agg gat tcc atc | | | 1300 |
| Asp Lys Val Lys Lys Lys Ala Leu Thr Ser Phe Glu Arg Asp Ser Ile | | | |
| 410 | 415 | 420 | 425 |
| ttc agc aac ttg act ggg cag ctt gat tac caa ggt ttt gaa aag gcc | | | 1348 |
| Phe Ser Asn Leu Thr Gly Gln Leu Asp Tyr Gln Gly Phe Glu Lys Ala | | | |
| 430 | 435 | 440 | |
| gac atg gtg att gaa gct gtg ttt gag gac ctt agt ctt aag cac aga | | | 1396 |
| Asp Met Val Ile Glu Ala Val Phe Glu Asp Leu Ser Leu Lys His Arg | | | |
| 445 | 450 | 455 | |
| gtg cta aag gaa gta gaa gcg gtg att cca gat cac tgt atc ttt gcc | | | 1444 |
| Val Leu Lys Glu Val Glu Ala Val Ile Pro Asp His Cys Ile Phe Ala | | | |
| 460 | 465 | 470 | |
| agt aac aca tct gct ctc cca atc agt gaa atc gct gct gtc agc aaa | | | 1492 |
| Ser Asn Thr Ser Ala Leu Pro Ile Ser Glu Ile Ala Ala Val Ser Lys | | | |
| 475 | 480 | 485 | |
| aga cct gag aag gtg att ggc atg cac tac ttc tct ccc gtg gac aag | | | 1540 |
| Arg Pro Glu Lys Val Ile Gly Met His Tyr Phe Ser Pro Val Asp Lys | | | |
| 490 | 495 | 500 | 505 |
| atg cag ctg ctg gag att atc acg acc gag aaa act tcc aaa gac acc | | | 1588 |
| Met Gln Leu Leu Glu Ile Ile Thr Thr Glu Lys Thr Ser Lys Asp Thr | | | |
| 510 | 515 | 520 | |
| agt gct tca gct gta gca gtt ggt ctc aag cag ggg aag gtc atc att | | | 1636 |
| Ser Ala Ser Ala Val Ala Val Gly Leu Lys Gln Gly Lys Val Ile Ile | | | |
| 525 | 530 | 535 | |
| gtg gtt aag gat gga cct ggc ttc tat act acc agg tgt ctt gcg ccc | | | 1684 |
| Val Val Lys Asp Gly Pro Gly Phe Tyr Thr Thr Arg Cys Leu Ala Pro | | | |
| 540 | 545 | 550 | |
| atg atg tct gaa gtc atc cga atc ctc cag gaa gga gtt gac ccg aag | | | 1732 |
| Met Met Ser Glu Val Ile Arg Ile Leu Gln Glu Gly Val Asp Pro Lys | | | |
| 555 | 560 | 565 | |
| aag ctg gat tcc ctg acc aca agc ttt ggc ttt cct gtg ggt gcc gcc | | | 1780 |
| Lys Leu Asp Ser Leu Thr Thr Ser Phe Gly Phe Pro Val Gly Ala Ala | | | |
| 570 | 575 | 580 | 585 |

| | |
|---|------|
| aca ctg gtg gat gaa gtt ggt gtg gat gta gcg aaa cat gtg gcg gaa Thr Leu Val Asp Glu Val Gly Val Asp Val Ala Lys His Val Ala Glu 590 595 600 | 1828 |
| gat ctg ggc aaa gtc ttt ggg gag cgg ttt gga ggt gga aac cca gaa Asp Leu Gly Lys Val Phe Gly Glu Arg Phe Gly Gly Gly Asn Pro Glu 605 610 615 | 1876 |
| ctg ctg aca cag atg gtg tcc aag ggc ttc cta ggt cgt aaa tct ggg Leu Leu Thr Gln Met Val Ser Lys Gly Phe Leu Gly Arg Lys Ser Gly 620 625 630 | 1924 |
| aag ggc ttt tac atc tat cag gag ggt gtg aag agg aag gat ttg aat Lys Gly Phe Tyr Ile Tyr Gln Glu Gly Val Lys Arg Lys Asp Leu Asn 635 640 645 | 1972 |
| tct gac atg gat agt att tta gcg agt ctg aag ctg cct cct aag tct Ser Asp Met Asp Ser Ile Leu Ala Ser Leu Lys Leu Pro Pro Lys Ser 650 655 660 665 | 2020 |
| gaa gtc tca tca gac gaa gac atc cag ttc cgc ctg gtg aca aga ttt Glu Val Ser Ser Asp Glu Asp Ile Gln Phe Arg Leu Val Thr Arg Phe 670 675 680 | 2068 |
| gtg aat gag gca gtc atg tgc ctg caa gag ggg atc ttg gcc aca cct Val Asn Glu Ala Val Met Cys Leu Gln Glu Gly Ile Leu Ala Thr Pro 685 690 695 | 2116 |
| gca gag gga gac atc gga gcc gtc ttt ggg ctt ggc ttc ccg cct tgt Ala Glu Gly Asp Ile Gly Ala Val Phe Gly Leu Gly Phe Pro Pro Cys 700 705 710 | 2164 |
| ctg gga ggg cct ttc cgc ttt gtg gat ctg tat ggc gcc cag aag ata Leu Gly Gly Pro Phe Arg Phe Val Asp Leu Tyr Gly Ala Gln Lys Ile 715 720 725 | 2212 |
| gtg gac cgg ctc aag aaa tat gaa gct gcc tat gga aaa cag ttc acc Val Asp Arg Leu Lys Lys Tyr Glu Ala Ala Tyr Gly Lys Lys Gln Phe Thr 730 735 740 745 | 2260 |
| cca tgc cag ctg cta gct gac cat gct aac agc cct aac aag aag ttc Pro Cys Gln Leu Leu Ala Asp His Ala Asn Ser Pro Asn Lys Lys Phe 750 755 760 | 2308 |
| tac cag tga gcaggcctca tgccctcgctc agtcagtgc ctaaccccag Tyr Gln | 2357 |
| ctgccggcag tgctggttct ccaacagagt ggtgtctaga tttatcagag taacgagaag | 2417 |

acaaactccg gcactgggtt tgctccctga ttaaagtgcc ttcagccaag accatctctc 2477
 cctcctggtg aagtgtgact tcgaattagt ttgcacttcc tatttgaagg tagagcccac 2537
 tgctcattgt ataagccccg aggcctagag tggcagccaa gagccatctg aagccacctc 2597
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 aacgcctcct tcaaaaagca atctggaaga aagccctgtg ctttggggga gtaagaatgt 2777
 gtgtgcagaa ttctaggcag caccttaggg agggactggg atgagagaaa gtgggacctg 2837
 gtgggtcaa ccacacacac ctgtctgtgc agatgctttg cccaggcttc tcaccacggt 2897
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 aaaaaa 2963

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Arg Ile Leu Arg Ser Arg Gly Tyr Ile Cys Arg Asn Phe Thr Gly Ser
 20 25 30

Ser Ala Leu Leu Thr Arg Thr His Ile Asn Tyr Gly Val Lys Gly Asp
 35 40 45

Val Ala Val Val Arg Ile Asn Ser Pro Asn Ser Lys Val Asn Thr Leu
 50 55 60

Ser Lys Glu Leu His Ser Glu Phe Ser Glu Val Met Asn Glu Ile Trp
 65 70 75 80

Ala Ser Asp Gln Ile Arg Ser Ala Val Leu Ile Ser Ser Lys Pro Gly
 85 90 95

Cys Phe Ile Ala Gly Ala Asp Ile Asn Met Leu Ala Ala Cys Lys Thr
100 105 110

Leu Gln Glu Val Thr Gln Leu Ser Gln Glu Ala Gln Arg Ile Val Glu
115 120 125

Lys Leu Glu Lys Ser Thr Lys Pro Ile Val Ala Ala Ile Asn Gly Ser
130 135 140

Cys Leu Gly Gly Gly Leu Glu Val Ala Ile Ser Cys Gln Tyr Arg Ile
145 150 155 160

Ala Thr Lys Asp Arg Lys Thr Val Leu Gly Thr Pro Glu Val Leu Leu
165 170 175

Gly Ala Leu Pro Gly Ala Gly Gly Thr Gln Arg Leu Pro Lys Met Val
180 185 190

Gly Val Pro Ala Ala Leu Asp Met Met Leu Thr Gly Arg Ser Ile Arg
195 200 205

Ala Asp Arg Ala Lys Lys Met Gly Leu Val Asp Gln Leu Val Glu Pro
210 215 220

Leu Gly Pro Gly Leu Lys Pro Pro Glu Glu Arg Thr Ile Glu Tyr Leu
225 230 235 240

Glu Glu Val Ala Ile Thr Phe Ala Lys Gly Leu Ala Asp Lys Lys Ile
245 250 255

Ser Pro Lys Arg Asp Lys Gly Leu Val Glu Lys Leu Thr Ala Tyr Ala
260 265 270

Met Thr Ile Pro Phe Val Arg Gln Gln Val Tyr Lys Lys Val Glu Glu
275 280 285

Lys Val Arg Lys Gln Thr Lys Gly Leu Tyr Pro Ala Pro Leu Lys Ile
290 295 300

Ile Asp Val Val Lys Thr Gly Ile Glu Gln Gly Ser Asp Ala Gly Tyr
305 310 315 320

Leu Cys Glu Ser Gln Lys Phe Gly Glu Leu Val Met Thr Lys Glu Ser
325 330 335

Lys Ala Leu Met Gly Leu Tyr His Gly Gln Val Leu Cys Lys Lys Asn
340 345 350

Lys Phe Gly Ala Pro Gln Lys Asp Val Lys His Leu Ala Ile Leu Gly
355 360 365

Ala Gly Leu Met Gly Ala Gly Ile Ala Gln Val Ser Val Asp Lys Gly
370 375 380

Leu Lys Thr Ile Leu Lys Asp Ala Thr Leu Thr Ala Leu Asp Arg Gly
385 390 395 400

Gln Gln Gln Val Phe Lys Gly Leu Asn Asp Lys Val Lys Lys Lys Ala
405 410 415

Leu Thr Ser Phe Glu Arg Asp Ser Ile Phe Ser Asn Leu Thr Gly Gln
420 425 430

Leu Asp Tyr Gln Gly Phe Glu Lys Ala Asp Met Val Ile Glu Ala Val
435 440 445

Phe Glu Asp Leu Ser Leu Lys His Arg Val Leu Lys Glu Val Glu Ala
450 455 460

Val Ile Pro Asp His Cys Ile Phe Ala Ser Asn Thr Ser Ala Leu Pro
465 470 475 480

Ile Ser Glu Ile Ala Ala Val Ser Lys Arg Pro Glu Lys Val Ile Gly
485 490 495

Met His Tyr Phe Ser Pro Val Asp Lys Met Gln Leu Leu Glu Ile Ile
500 505 510

Thr Thr Glu Lys Thr Ser Lys Asp Thr Ser Ala Ser Ala Val Ala Val
515 520 525

Gly Leu Lys Gln Gly Lys Val Ile Ile Val Val Lys Asp Gly Pro Gly
530 535 540

Phe Tyr Thr Thr Arg Cys Leu Ala Pro Met Met Ser Glu Val Ile Arg
545 550 555 560

Ile Leu Gln Glu Gly Val Asp Pro Lys Lys Leu Asp Ser Leu Thr Thr
565 570 575

Ser Phe Gly Phe Pro Val Gly Ala Ala Thr Leu Val Asp Glu Val Gly
580 585 590

Val Asp Val Ala Lys His Val Ala Glu Asp Leu Gly Lys Val Phe Gly
595 600 605

Glu Arg Phe Gly Gly Gly Asn Pro Glu Leu Leu Thr Gln Met Val Ser
610 615 620

Lys Gly Phe Leu Gly Arg Lys Ser Gly Lys Gly Phe Tyr Ile Tyr Gln
625 630 635 640

Glu Gly Val Lys Arg Lys Asp Leu Asn Ser Asp Met Asp Ser Ile Leu
645 650 655

Ala Ser Leu Lys Leu Pro Pro Lys Ser Glu Val Ser Ser Asp Glu Asp
660 665 670

Ile Gln Phe Arg Leu Val Thr Arg Phe Val Asn Glu Ala Val Met Cys
675 680 685

Leu Gln Glu Gly Ile Leu Ala Thr Pro Ala Glu Gly Asp Ile Gly Ala
690 695 700

Val Phe Gly Leu Gly Phe Pro Pro Cys Leu Gly Gly Pro Phe Arg Phe
705 710 715 720

Val Asp Leu Tyr Gly Ala Gln Lys Ile Val Asp Arg Leu Lys Lys Tyr
725 730 735

Glu Ala Ala Tyr Gly Lys Gln Phe Thr Pro Cys Gln Leu Leu Ala Asp
740 745 750

His Ala Asn Ser Pro Asn Lys Lys Phe Tyr Gln
755 760

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Met Leu Arg Arg
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gct ctg ctg tgc ctg gcc gtg gcc gcc ctg gtg cgc gcc gac gcc ccc 104
Ala Leu Leu Cys Leu Ala Val Ala Ala Leu Val Arg Ala Asp Ala Pro
5 10 15 20

gag gag gag gac cac gtc ctg gtg ctg cgg aaa agc aac ttc gcg gag 152
Glu Glu Glu Asp His Val Leu Val Leu Arg Lys Ser Asn Phe Ala Glu
25 30 35

gcg ctg gcg gcc cac aag tac ctg ctg gtg gag ttc tat gcc cct tgg 200
Ala Leu Ala Ala His Lys Tyr Leu Leu Val Glu Phe Tyr Ala Pro Trp
40 45 50

tgt ggc cac tgc aag gct ctg gcc cct gag tat gcc aaa gcc gct ggg 248
Cys Gly His Cys Lys Ala Leu Ala Pro Glu Tyr Ala Lys Ala Ala Gly
55 60 65

| | |
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| aag ctg aag gca gaa ggt tcc gag atc agg ttg gcc aag gtg gac gcc Lys Leu Lys Ala Glu Gly Ser Glu Ile Arg Leu Ala Lys Val Asp Ala 70 75 80 | 296 |
| acg gag gag tct gac ctg gcc cag cag tac ggc gtg cgc ggc tat ccc Thr Glu Glu Ser Asp Leu Ala Gln Gln Tyr Gly Val Arg Gly Tyr Pro 85 90 95 100 | 344 |
| acc atc aag ttc ttc agg aat gga gac acg gct tcc ccc aag gaa tat Thr Ile Lys Phe Phe Arg Asn Gly Asp Thr Ala Ser Pro Lys Glu Tyr 105 110 115 | 392 |
| aca gct ggc aga gag gct gat gac atc gtg aac tgg ctg aag aag cgc Thr Ala Gly Arg Glu Ala Asp Asp Ile Val Asn Trp Leu Lys Lys Arg 120 125 130 | 440 |
| acg ggc ccg gct gcc acc acc ctg cct gac ggc gca gct gca gag tcc Thr Gly Pro Ala Ala Thr Thr Leu Pro Asp Gly Ala Ala Ala Glu Ser 135 140 145 | 488 |
| ttg gtg gag tcc agc gag gtg gct gtc atc ggc ttc ttc aag gac gtg Leu Val Glu Ser Ser Glu Val Ala Val Ile Gly Phe Phe Lys Asp Val 150 155 160 | 536 |
| gag tcg gac tct gcc aag cag ttt ttg cag gca gca gag gcc atc gat Glu Ser Asp Ser Ala Lys Gln Phe Leu Gln Ala Ala Glu Ala Ile Asp 165 170 175 180 | 584 |
| gac ata cca ttt ggg atc act tcc aac agt gac gtg ttc tcc aaa tac Asp Ile Pro Phe Gly Ile Thr Ser Asn Ser Asp Val Phe Ser Lys Tyr 185 190 195 | 632 |
| cag ctc gac aaa gat ggg gtt gtc ctc ttt aag aag ttt gat gaa ggc Gln Leu Asp Lys Asp Gly Val Val Leu Phe Lys Lys Phe Asp Glu Gly 200 205 210 | 680 |
| cgg aac aac ttt gaa ggg gag gtc acc aag gag aac ctg ctg gac ttt Arg Asn Asn Phe Glu Gly Glu Val Thr Lys Glu Asn Leu Leu Asp Phe 215 220 225 | 728 |
| atc aaa cac aac cag ctg ccc ctt gtc atc gag ttc acc gag cag aca Ile Lys His Asn Gln Leu Pro Leu Val Ile Glu Phe Thr Glu Gln Thr 230 235 240 | 776 |
| gcc ccg aag att ttt gga ggt gaa atc aag act cac atc ctg ctg ttc Ala Pro Lys Ile Phe Gly Gly Glu Ile Lys Thr His Ile Leu Leu Phe 245 250 255 260 | 824 |
| ttg ccc aag agt gtg tct gac tat gac ggc aaa ctg agc aac ttc aaa 107/201 | 872 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Leu | Pro | Lys | Ser | Val | Ser | Asp | Tyr | Asp | Gly | Lys | Leu | Ser | Asn | Phe | Lys | |
| | | | | 265 | | | | | 270 | | | | | 275 | | |
| aca | gca | gcc | gag | agc | ttc | aag | ggc | aag | atc | ctg | ttc | atc | ttc | atc | gac | 920 |
| Thr | Ala | Ala | Glu | Ser | Phe | Lys | Gly | Lys | Ile | Leu | Phe | Ile | Phe | Ile | Asp | |
| | | | 280 | | | | | 285 | | | | | 290 | | | |
| agc | gac | cac | acc | gac | aac | cag | cgc | atc | ctc | gag | ttc | ttt | ggc | ctg | aag | 968 |
| Ser | Asp | His | Thr | Asp | Asn | Gln | Arg | Ile | Leu | Glu | Phe | Phe | Gly | Leu | Lys | |
| | | 295 | | | | | 300 | | | | | 305 | | | | |
| aag | gaa | gag | tgc | ccg | gcc | gtg | cgc | ctc | atc | acc | ctg | gag | gag | gag | atg | 1016 |
| Lys | Glu | Glu | Cys | Pro | Ala | Val | Arg | Leu | Ile | Thr | Leu | Glu | Glu | Glu | Met | |
| | 310 | | | | | 315 | | | | | 320 | | | | | |
| acc | aag | tac | aag | ccc | gaa | tcg | gag | gag | ctg | acg | gca | gag | agg | atc | aca | 1064 |
| Thr | Lys | Tyr | Lys | Pro | Glu | Ser | Glu | Glu | Leu | Thr | Ala | Glu | Arg | Ile | Thr | |
| 325 | | | | | 330 | | | | | 335 | | | | | 340 | |
| gag | ttc | tgc | cac | cgc | ttc | ctg | gag | ggc | aaa | atc | aag | ccc | cac | ctg | atg | 1112 |
| Glu | Phe | Cys | His | Arg | Phe | Leu | Glu | Gly | Lys | Ile | Lys | Pro | His | Leu | Met | |
| | | | | 345 | | | | | 350 | | | | | 355 | | |
| agc | cag | gag | ctg | ccg | gag | gac | tgg | gac | aag | cag | cct | gtc | aag | gtg | ctt | 1160 |
| Ser | Gln | Glu | Leu | Pro | Glu | Asp | Trp | Asp | Lys | Gln | Pro | Val | Lys | Val | Leu | |
| | | | 360 | | | | | 365 | | | | | 370 | | | |
| gtt | ggg | aag | aac | ttt | gaa | gac | gtg | gct | ttt | gat | gag | aaa | aaa | aac | gtc | 1208 |
| Val | Gly | Lys | Asn | Phe | Glu | Asp | Val | Ala | Phe | Asp | Glu | Lys | Lys | Asn | Val | |
| | | 375 | | | | | 380 | | | | | 385 | | | | |
| ttt | gtg | gag | ttc | tat | gcc | cca | tgg | tgt | ggc | cac | tgc | aaa | cag | ttg | gct | 1256 |
| Phe | Val | Glu | Phe | Tyr | Ala | Pro | Trp | Cys | Gly | His | Cys | Lys | Gln | Leu | Ala | |
| | 390 | | | | | 395 | | | | | 400 | | | | | |
| ccc | att | tgg | gat | aaa | ctg | gga | gag | acg | tac | aag | gac | cat | gag | aac | atc | 1304 |
| Pro | Ile | Trp | Asp | Lys | Leu | Gly | Glu | Thr | Tyr | Lys | Asp | His | Glu | Asn | Ile | |
| 405 | | | | | 410 | | | | | 415 | | | | | 420 | |
| gtc | atc | gcc | aag | atg | gac | tcg | act | gcc | aac | gag | gtg | gag | gcc | gtc | aaa | 1352 |
| Val | Ile | Ala | Lys | Met | Asp | Ser | Thr | Ala | Asn | Glu | Val | Glu | Ala | Val | Lys | |
| | | | | 425 | | | | | 430 | | | | 435 | | | |
| gtg | cac | agc | ttc | ccc | aca | ctc | aag | ttc | ttt | cct | gcc | agt | gcc | gac | agg | 1400 |
| Val | His | Ser | Phe | Pro | Thr | Leu | Lys | Phe | Phe | Pro | Ala | Ser | Ala | Asp | Arg | |
| | | | 440 | | | | | 445 | | | | | 450 | | | |
| acg | gtc | att | gat | tac | aac | ggg | gaa | cgc | acg | ctg | gat | ggc | ttt | aag | aaa | 1448 |
| Thr | Val | Ile | Asp | Tyr | Asn | Gly | Glu | Arg | Thr | Leu | Asp | Gly | Phe | Lys | Lys | |
| | | 455 | | | | | 460 | | | | | 465 | | | | |

| | |
|---|------|
| ttc ctg gag agc ggt ggc cag gat ggg gca ggg gat gat gac gat ctc | 1496 |
| Phe Leu Glu Ser Gly Gly Gln Asp Gly Ala Gly Asp Asp Asp Asp Leu | |
| 470 475 480 | |
| gag gac ctg gaa gaa gca gag gag cca gac atg gag gaa gac gat gat | 1544 |
| Glu Asp Leu Glu Glu Ala Glu Glu Pro Asp Met Glu Glu Asp Asp Asp | |
| 485 490 495 500 | |
| cag aaa gct gtg aaa gat gaa ctg taa tacgcaaagc cagaccggg | 1591 |
| Gln Lys Ala Val Lys Asp Glu Leu | |
| 505 | |
| cgctgccgag acccctcggg ggctgcacac ccagcagcag cgcacgcctc cgaagcctgc | 1651 |
| ggcctcgctt gaaggagggc gtcgccggaa acccagggaa cctctctgaa gtgacacctc | 1711 |
| accctacac accgtccgtt ccccccgtc tcttccttct gcttttcggg ttttgaaaag | 1771 |
| ggatccatct ccaggcagcc caccctgggtg gggtttgttt cctgaaacca tgatgtactt | 1831 |
| tttcatacat gagtctgtcc agagtgcctg ctaccgtgtt cggagtctcg ctgcctcctt | 1891 |
| cccgcgggag gtttctcctc tttttgaaaa ttccgtctgt gggattttta gacatttttc | 1951 |
| gacatcaggg tatttgttcc accttggcca ggcctcctcg gagaagcttg tccccgtgt | 2011 |
| gggagggacg gagccggact ggacatggtc actcagtacc gcctgcagtg tcgccatgac | 2071 |
| tgatcatggc tcttgcatth ttgggtaaat ggagacttcc ggatcctgtc aggggtgtccc | 2131 |
| ccatgcctgg aagaggagct ggtggctgcc agccctgggg cccggcacag gcctgggcct | 2191 |
| tccccttccc tcaagccagg gctcctcctc ctgtcgtggg ctcatgtga ccaactggcct | 2251 |
| ctctacagca cggcctgtgg cctgttcaag gcagaaccac gacccttgac tcccgggtgg | 2311 |
| ggaggtggcc aaggatgctg gagctgaatc agacgtgac agttcttcag gcatttctat | 2371 |
| ttcacaatcg aattgaacac attggccaaa taaagttgaa attttaccac caaaaaaaaa | 2431 |
| aaaaaaa | 2438 |

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 <212> PRT
 <213> Homo sapiens

<400> 38

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Asn Phe Ala Glu Ala Leu Ala Ala His Lys Tyr Leu Leu Val Glu Phe
35 40 45

Tyr Ala Pro Trp Cys Gly His Cys Lys Ala Leu Ala Pro Glu Tyr Ala
50 55 60

Lys Ala Ala Gly Lys Leu Lys Ala Glu Gly Ser Glu Ile Arg Leu Ala
65 70 75 80

Lys Val Asp Ala Thr Glu Glu Ser Asp Leu Ala Gln Gln Tyr Gly Val
85 90 95

Arg Gly Tyr Pro Thr Ile Lys Phe Phe Arg Asn Gly Asp Thr Ala Ser
100 105 110

Pro Lys Glu Tyr Thr Ala Gly Arg Glu Ala Asp Asp Ile Val Asn Trp
115 120 125

Leu Lys Lys Arg Thr Gly Pro Ala Ala Thr Thr Leu Pro Asp Gly Ala
130 135 140

Ala Ala Glu Ser Leu Val Glu Ser Ser Glu Val Ala Val Ile Gly Phe
145 150 155 160

Phe Lys Asp Val Glu Ser Asp Ser Ala Lys Gln Phe Leu Gln Ala Ala
165 170 175

Glu Ala Ile Asp Asp Ile Pro Phe Gly Ile Thr Ser Asn Ser Asp Val
180 185 190

Phe Ser Lys Tyr Gln Leu Asp Lys Asp Gly Val Val Leu Phe Lys Lys
110/201

| | | |
|---|-----|---------|
| 195 | 200 | 205 |
| Phe Asp Glu Gly Arg Asn Asn Phe Glu Gly Glu Val Thr Lys Glu Asn | | |
| 210 | 215 | 220 |
| Leu Leu Asp Phe Ile Lys His Asn Gln Leu Pro Leu Val Ile Glu Phe | | |
| 225 | 230 | 235 240 |
| Thr Glu Gln Thr Ala Pro Lys Ile Phe Gly Gly Glu Ile Lys Thr His | | |
| | 245 | 250 255 |
| Ile Leu Leu Phe Leu Pro Lys Ser Val Ser Asp Tyr Asp Gly Lys Leu | | |
| | 260 | 265 270 |
| Ser Asn Phe Lys Thr Ala Ala Glu Ser Phe Lys Gly Lys Ile Leu Phe | | |
| | 275 | 280 285 |
| Ile Phe Ile Asp Ser Asp His Thr Asp Asn Gln Arg Ile Leu Glu Phe | | |
| | 290 | 295 300 |
| Phe Gly Leu Lys Lys Glu Glu Cys Pro Ala Val Arg Leu Ile Thr Leu | | |
| 305 | 310 | 315 320 |
| Glu Glu Glu Met Thr Lys Tyr Lys Pro Glu Ser Glu Glu Leu Thr Ala | | |
| | 325 | 330 335 |
| Glu Arg Ile Thr Glu Phe Cys His Arg Phe Leu Glu Gly Lys Ile Lys | | |
| | 340 | 345 350 |
| Pro His Leu Met Ser Gln Glu Leu Pro Glu Asp Trp Asp Lys Gln Pro | | |
| | 355 | 360 365 |
| Val Lys Val Leu Val Gly Lys Asn Phe Glu Asp Val Ala Phe Asp Glu | | |
| | 370 | 375 380 |
| Lys Lys Asn Val Phe Val Glu Phe Tyr Ala Pro Trp Cys Gly His Cys | | |
| 385 | 390 | 395 400 |

Lys Gln Leu Ala Pro Ile Trp Asp Lys Leu Gly Glu Thr Tyr Lys Asp
405 410 415

His Glu Asn Ile Val Ile Ala Lys Met Asp Ser Thr Ala Asn Glu Val
420 425 430

Glu Ala Val Lys Val His Ser Phe Pro Thr Leu Lys Phe Phe Pro Ala
435 440 445

Ser Ala Asp Arg Thr Val Ile Asp Tyr Asn Gly Glu Arg Thr Leu Asp
450 455 460

Gly Phe Lys Lys Phe Leu Glu Ser Gly Gly Gln Asp Gly Ala Gly Asp
465 470 475 480

Asp Asp Asp Leu Glu Asp Leu Glu Glu Ala Glu Glu Pro Asp Met Glu
485 490 495

Glu Asp Asp Asp Gln Lys Ala Val Lys Asp Glu Leu
500 505

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atg gga cta gct ggc gtg tgc gcc ctg aga cgc tca gcg ggc tat ata 167
Met Gly Leu Ala Gly Val Cys Ala Leu Arg Arg Ser Ala Gly Tyr Ile
1 5 10 15
ctc gtc ggt ggg gcc ggc ggt cag tct gcg gca gcg gca gca aga cgg 215
Leu Val Gly Gly Ala Gly Gly Gln Ser Ala Ala Ala Ala Arg Arg
112/201

| 20 | 25 | 30 | |
|---|-----|-----|-----|
| tgc agt gaa gga gag tgg gcg tct ggc ggg gtc cgc agt ttc agc aga | | | 263 |
| Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg | | | |
| 35 | 40 | 45 | |
| gcc gct gca gcc atg gcc cca atc aag gtg gga gat gcc atc cca gca | | | 311 |
| Ala Ala Ala Ala Met Ala Pro Ile Lys Val Gly Asp Ala Ile Pro Ala | | | |
| 50 | 55 | 60 | |
| gtg gag gtg ttt gaa ggg gag cca ggg aac aag gtg aac ctg gca gag | | | 359 |
| Val Glu Val Phe Glu Gly Glu Pro Gly Asn Lys Val Asn Leu Ala Glu | | | |
| 65 | 70 | 75 | 80 |
| ctg ttc aag ggc aag aag ggt gtg ctg ttt gga gtt cct ggg gcc ttc | | | 407 |
| Leu Phe Lys Gly Lys Lys Gly Val Leu Phe Gly Val Pro Gly Ala Phe | | | |
| 85 | 90 | 95 | |
| acc cct gga tgt tcc aag aca cac ctg cca ggg ttt gtg gag cag gct | | | 455 |
| Thr Pro Gly Cys Ser Lys Thr His Leu Pro Gly Phe Val Glu Gln Ala | | | |
| 100 | 105 | 110 | |
| gag gct ctg aag gcc aag gga gtc cag gtg gtg gcc tgt ctg agt gtt | | | 503 |
| Glu Ala Leu Lys Ala Lys Gly Val Gln Val Val Ala Cys Leu Ser Val | | | |
| 115 | 120 | 125 | |
| aat gat gcc ttt gtg act ggc gag tgg ggc cga gcc cac aag gcg gaa | | | 551 |
| Asn Asp Ala Phe Val Thr Gly Glu Trp Gly Arg Ala His Lys Ala Glu | | | |
| 130 | 135 | 140 | |
| ggc aag gtt cgg ctc ctg gct gat ccc act ggg gcc ttt ggg aag gag | | | 599 |
| Gly Lys Val Arg Leu Leu Ala Asp Pro Thr Gly Ala Phe Gly Lys Glu | | | |
| 145 | 150 | 155 | 160 |
| aca gac tta tta cta gat gat tcg ctg gtg tcc atc ttt ggg aat cga | | | 647 |
| Thr Asp Leu Leu Leu Asp Asp Ser Leu Val Ser Ile Phe Gly Asn Arg | | | |
| 165 | 170 | 175 | |
| cgt ctc aag agg ttc tcc atg gtg gta cag gat ggc ata gtg aag gcc | | | 695 |
| Arg Leu Lys Arg Phe Ser Met Val Val Gln Asp Gly Ile Val Lys Ala | | | |
| 180 | 185 | 190 | |
| ctg aat gtg gaa cca gat ggc aca ggc ctc acc tgc agc ctg gca ccc | | | 743 |
| Leu Asn Val Glu Pro Asp Gly Thr Gly Leu Thr Cys Ser Leu Ala Pro | | | |
| 195 | 200 | 205 | |
| aat atc atc tca cag ctc tga ggccctgggc cagattactt cctccacccc | | | 794 |
| Asn Ile Ile Ser Gln Leu | | | |
| 210 | | | |

tccctatctc acctgcccag ccctgtgctg gggccctgca attggaatgt tggccagatt 854
 tctgcaataa acacttgttg tttgcggcca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 914
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 959

<210> 40
 <211> 214
 <212> PRT
 <213> Homo sapiens

<400> 40

Met Gly Leu Ala Gly Val Cys Ala Leu Arg Arg Ser Ala Gly Tyr Ile
 1 5 10 15

Leu Val Gly Gly Ala Gly Gly Gln Ser Ala Ala Ala Ala Ala Arg Arg
 20 25 30

Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg
 35 40 45

Ala Ala Ala Ala Met Ala Pro Ile Lys Val Gly Asp Ala Ile Pro Ala
 50 55 60

Val Glu Val Phe Glu Gly Glu Pro Gly Asn Lys Val Asn Leu Ala Glu
 65 70 75 80

Leu Phe Lys Gly Lys Lys Gly Val Leu Phe Gly Val Pro Gly Ala Phe
 85 90 95

Thr Pro Gly Cys Ser Lys Thr His Leu Pro Gly Phe Val Glu Gln Ala
 100 105 110

Glu Ala Leu Lys Ala Lys Gly Val Gln Val Val Ala Cys Leu Ser Val
 115 120 125

Asn Asp Ala Phe Val Thr Gly Glu Trp Gly Arg Ala His Lys Ala Glu
 130 135 140

Gly Lys Val Arg Leu Leu Ala Asp Pro Thr Gly Ala Phe Gly Lys Glu
 145 150 155 160

Thr Asp Leu Leu Leu Asp Asp Ser Leu Val Ser Ile Phe Gly Asn Arg
 165 170 175

Arg Leu Lys Arg Phe Ser Met Val Val Gln Asp Gly Ile Val Lys Ala
 180 185 190

Leu Asn Val Glu Pro Asp Gly Thr Gly Leu Thr Cys Ser Leu Ala Pro
 195 200 205

Asn Ile Ile Ser Gln Leu
 210

<210> 41
 <211> 1874
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (7).. (678)
 <223>

<400> 41
 ccggtg atg gcg gct ggt gat ggg gac gtg aag cta ggc acc ctg ggg 48
 Met Ala Ala Gly Asp Gly Asp Val Lys Leu Gly Thr Leu Gly
 1 5 10

agt ggc agc gag agc agc aac gac ggc ggc agc gag agt cca ggc gac 96
 Ser Gly Ser Glu Ser Ser Asn Asp Gly Gly Ser Glu Ser Pro Gly Asp
 15 20 25 30

gcg gga gcg gca gcg gaa ggg gga ggc tgg gcg gcg gcg gcg ttg gcg 144
 Ala Gly Ala Ala Ala Glu Gly Gly Gly Trp Ala Ala Ala Ala Leu Ala
 35 40 45

ctt ctg acg ggg ggc ggg gaa atg ctg ctg aac gtg gcg ctg gtg gct 192
 Leu Leu Thr Gly Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala
 50 55 60

ctg gtg ctg ctg ggg gcc tac cgg ctg tgg gtg cgc tgg ggg cgg cgg 240
 Leu Val Leu Leu Gly Ala Tyr Arg Leu Trp Val Arg Trp Gly Arg Arg
 65 70 75

| | |
|---|------|
| ggt ctg ggg gcc ggg gcc ggg gcg ggc gag gag agc ccc gcc acc tct Gly Leu Gly Ala Gly Ala Gly Ala Gly Glu Glu Ser Pro Ala Thr Ser 80 85 90 | 288 |
| ctg cct cgc atg aag aag cgg gac ttc agc ttg gag cag ctg cgc cag Leu Pro Arg Met Lys Lys Arg Asp Phe Ser Leu Glu Gln Leu Arg Gln 95 100 105 110 | 336 |
| tac gac ggc tcc cgc aac ccg cgc atc ctg ctc gcg gtc aat ggg aaa Tyr Asp Gly Ser Arg Asn Pro Arg Ile Leu Leu Ala Val Asn Gly Lys 115 120 125 | 384 |
| gtc ttc gac gtg acc aaa ggc agc aag ttc tac ggc ccg gcg ggt cca Val Phe Asp Val Thr Lys Gly Ser Lys Phe Tyr Gly Pro Ala Gly Pro 130 135 140 | 432 |
| tat gga ata ttt gct ggt agg gat gcc tcc aga gga ctg gcc aca ttt Tyr Gly Ile Phe Ala Gly Arg Asp Ala Ser Arg Gly Leu Ala Thr Phe 145 150 155 | 480 |
| tgc cta gat aaa gat gca ctt aga gat gaa tat gat gat ctc tca gat Cys Leu Asp Lys Asp Ala Leu Arg Asp Glu Tyr Asp Asp Leu Ser Asp 160 165 170 | 528 |
| ttg aat gca gta caa atg gag agt gtt cga gaa tgg gaa atg cag ttt Leu Asn Ala Val Gln Met Glu Ser Val Arg Glu Trp Glu Met Gln Phe 175 180 185 190 | 576 |
| aaa gaa aaa tat gat tat gta ggc aga ctc cta aaa cca gga gaa gaa Lys Glu Lys Tyr Asp Tyr Val Gly Arg Leu Leu Lys Pro Gly Glu Glu 195 200 205 | 624 |
| cca tca gaa tat aca gat gaa gaa gat acc aag gat cac aat aaa cag Pro Ser Glu Tyr Thr Asp Glu Glu Asp Thr Lys Asp His Asn Lys Gln 210 215 220 | 672 |
| gat tga actttgtaaa caaccaaagt caggggcctt cagaactgca attcttactc Asp | 728 |
| cctttcacag actgtccgga gtctttgggt ttgattcacc tgctgcgaaa aacattcaac | 788 |
| aaattgtgta caagataaat taatctcact atgaagattt gaataactag acattattta | 848 |
| tgctgccaaa ctcatTTgtt gcagttgttt gtaatgtcta gtggggcttc atcatcctga | 908 |
| aaagaaggag acagggattt ttttaaagag caagaaagtc acaatattac ttctttcctt | 968 |
| ccttttttcc ttctttcctt tcttctttct ctttctttct ttttaaata tattgaagac | 1028 |

aaccagatat gtatttgcta ctcaagtgta cagatctcct caagaaacat caagggactc 1088
ctgtgtcaca tactgtgttt ttattttaac atgggtgagg gaggcgacct gatcagggga 1148
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caaacttttc tttttggcct tgtcaggga aagaaaaata tctttataaa gaaatctttg 1268
gaaattagga gaaggaattt caggtgggtt taagtcagag ctagttcccc aacagaaaga 1328
tcatttgaaa ccagttttta tcccttctct ttccttcctt tccctaaat caaatcaata 1388
ttaattgtgc cttatttcac ttaacataga ctggaattat ttttagggaa agcccctata 1448
atgaattcag aaatcactac aagcagcatt aagactgaag ttggaatatt ctgttgacca 1508
taaaaccttg atatcattct gtgtatatag aatgtaaaag gaatattaca gtgttaactg 1568
ccatatatgt aatatacaca aactcaatta gcattgtaat ggccaaatgc attcccccat 1628
gcttttctgt tttcaaaaaa attgaaaaac aaatcaactc ttatcccaa cagctgccta 1688
attttaggag tctgaccctc cacatctcac tgggtgtgggt gcatggggct gtggagtggg 1748
tgtcagtatg gatgtgtctg aatgtgtgag gccttggaag ggactctttc tgcagatact 1808
gtaaatacaa gtaccatttt aataaagcat gtacaataaa ccaaaaaaaaa aaaaaaaaaa 1868
aaaaaa 1874

<210> 42
<211> 223
<212> PRT
<213> Homo sapiens

<400> 42

Met Ala Ala Gly Asp Gly Asp Val Lys Leu Gly Thr Leu Gly Ser Gly
1 5 10 15

Ser Glu Ser Ser Asn Asp Gly Gly Ser Glu Ser Pro Gly Asp Ala Gly
20 25 30

Ala Ala Ala Glu Gly Gly Gly Trp Ala Ala Ala Ala Leu Ala Leu Leu
35 40 45

Thr Gly Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala Leu Val
50 55 60

Leu Leu Gly Ala Tyr Arg Leu Trp Val Arg Trp Gly Arg Arg Gly Leu
65 70 75 80

Gly Ala Gly Ala Gly Ala Gly Glu Glu Ser Pro Ala Thr Ser Leu Pro
85 90 95

Arg Met Lys Lys Arg Asp Phe Ser Leu Glu Gln Leu Arg Gln Tyr Asp
100 105 110

Gly Ser Arg Asn Pro Arg Ile Leu Leu Ala Val Asn Gly Lys Val Phe
115 120 125

Asp Val Thr Lys Gly Ser Lys Phe Tyr Gly Pro Ala Gly Pro Tyr Gly
130 135 140

Ile Phe Ala Gly Arg Asp Ala Ser Arg Gly Leu Ala Thr Phe Cys Leu
145 150 155 160

Asp Lys Asp Ala Leu Arg Asp Glu Tyr Asp Asp Leu Ser Asp Leu Asn
165 170 175

Ala Val Gln Met Glu Ser Val Arg Glu Trp Glu Met Gln Phe Lys Glu
180 185 190

Lys Tyr Asp Tyr Val Gly Arg Leu Leu Lys Pro Gly Glu Glu Pro Ser
195 200 205

Glu Tyr Thr Asp Glu Glu Asp Thr Lys Asp His Asn Lys Gln Asp
210 215 220

<210> 43

<211> 3795

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (236)..(1633)

<223>

<400> 43

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cgcggtccgc ggagcgggggt ccgggctgcg cgacgtgggg cgcggcggcg actgcggccc 120

cgccccaaagc ccgaccccggt gtccctctct cggccgcccc ccgcccggcc gcccgccctc 180

gggcctcccc ccgggccctc ggtccctctc cccgctggcg gggcccggac agaag atg 238
Met
1

gtg cag aag aaa cca gcc gaa ctt cag ggt ttc cac cgt tcg ttc aag 286
Val Gln Lys Lys Pro Ala Glu Leu Gln Gly Phe His Arg Ser Phe Lys
5 10 15

ggg cag aac ccc ttc gag ctg gcc ttc tcc cta gac cag ccc gac cac 334
Gly Gln Asn Pro Phe Glu Leu Ala Phe Ser Leu Asp Gln Pro Asp His
20 25 30

gga gac tct gac ttt ggc ctg cag tgc tca gcc cgc cct gac atg ccc 382
Gly Asp Ser Asp Phe Gly Leu Gln Cys Ser Ala Arg Pro Asp Met Pro
35 40 45

gcc agc cag ccc att gac atc ccg gac gcc aag aag agg ggc aag aag 430
Ala Ser Gln Pro Ile Asp Ile Pro Asp Ala Lys Lys Arg Gly Lys Lys
50 55 60 65

aag aag cgc ggc cgg gcc acc gac agc ttc tcg ggc agg ttt gaa gac 478
Lys Lys Arg Gly Arg Ala Thr Asp Ser Phe Ser Gly Arg Phe Glu Asp
70 75 80

gtc tac cag ctg cag gaa gat gtg ctg ggg gag ggc gct cat gcc cga 526
Val Tyr Gln Leu Gln Glu Asp Val Leu Gly Glu Gly Ala His Ala Arg
85 90 95

gtg cag acc tgc atc aac ctg atc acc agc cag gag tac gcc gtc aag 574
Val Gln Thr Cys Ile Asn Leu Ile Thr Ser Gln Glu Tyr Ala Val Lys
100 105 110

atc att gag aag cag cca ggc cac att cgg agc agg gtt ttc agg gag 622
Ile Ile Glu Lys Gln Pro Gly His Ile Arg Ser Arg Val Phe Arg Glu
115 120 125

gtg gag atg ctg tac cag tgc cag gga cac agg aac gtc cta gag ctg 670
Val Glu Met Leu Tyr Gln Cys Gln Gly His Arg Asn Val Leu Glu Leu
119/201

| 130 | 135 | 140 | 145 | |
|---|-----|-----|-----|------|
| att gag ttc ttc gag gag gag gac cgc ttc tac ctg gtg ttt gag aag | | | | 718 |
| Ile Glu Phe Phe Glu Glu Glu Asp Arg Phe Tyr Leu Val Phe Glu Lys | | | | |
| 150 | 155 | 160 | | |
| atg cgg gga ggc tcc atc ctg agc cac atc cac aag cgc cgg cac ttc | | | | 766 |
| Met Arg Gly Gly Ser Ile Leu Ser His Ile His Lys Arg Arg His Phe | | | | |
| 165 | 170 | 175 | | |
| aac gag ctg gag gcc agc gtg gtg gtg cag gac gtg gcc agc gcc ttg | | | | 814 |
| Asn Glu Leu Glu Ala Ser Val Val Val Gln Asp Val Ala Ser Ala Leu | | | | |
| 180 | 185 | 190 | | |
| gac ttt ctg cat aac aaa ggc atc gcc cac agg gac cta aag ccg gaa | | | | 862 |
| Asp Phe Leu His Asn Lys Gly Ile Ala His Arg Asp Leu Lys Pro Glu | | | | |
| 195 | 200 | 205 | | |
| aac atc ctc tgt gag cac ccc aac cag gtc tcc ccc gtg aag atc tgt | | | | 910 |
| Asn Ile Leu Cys Glu His Pro Asn Gln Val Ser Pro Val Lys Ile Cys | | | | |
| 210 | 215 | 220 | 225 | |
| gac ttc gac ctg ggc agc ggc atc aaa ctc aac ggg gac tgc tcc cct | | | | 958 |
| Asp Phe Asp Leu Gly Ser Gly Ile Lys Leu Asn Gly Asp Cys Ser Pro | | | | |
| 230 | 235 | 240 | | |
| atc tcc acc ccg gag ctg ctc act ccg tgc ggc tcg gcg gag tac atg | | | | 1006 |
| Ile Ser Thr Pro Glu Leu Leu Thr Pro Cys Gly Ser Ala Glu Tyr Met | | | | |
| 245 | 250 | 255 | | |
| gcc ccg gag gta gtg gag gcc ttc agc gag gag gct agc atc tac gac | | | | 1054 |
| Ala Pro Glu Val Val Glu Ala Phe Ser Glu Glu Ala Ser Ile Tyr Asp | | | | |
| 260 | 265 | 270 | | |
| aag cgc tgc gac ctg tgg agc ctg ggc gtc atc ttg tat atc cta ctc | | | | 1102 |
| Lys Arg Cys Asp Leu Trp Ser Leu Gly Val Ile Leu Tyr Ile Leu Leu | | | | |
| 275 | 280 | 285 | | |
| agc ggc tac ccg ccc ttc gtg ggc cgc tgt ggc agc gac tgc ggc tgg | | | | 1150 |
| Ser Gly Tyr Pro Pro Phe Val Gly Arg Cys Gly Ser Asp Cys Gly Trp | | | | |
| 290 | 295 | 300 | 305 | |
| gac cgc ggc gag gcc tgc cct gcc tgc cag aac atg ctg ttt gag agc | | | | 1198 |
| Asp Arg Gly Glu Ala Cys Pro Ala Cys Gln Asn Met Leu Phe Glu Ser | | | | |
| 310 | 315 | 320 | | |
| atc cag gag ggc aag tac gag ttc ccc gac aag gac tgg gcc cac atc | | | | 1246 |
| Ile Gln Glu Gly Lys Tyr Glu Phe Pro Asp Lys Asp Trp Ala His Ile | | | | |
| 325 | 330 | 335 | | |

| | |
|---|------|
| tcc tgc gct gcc aaa gac ctc atc tcc aag ctg ctg gtc cgt gac gcc Ser Cys Ala Ala Lys Asp Leu Ile Ser Lys Leu Leu Val Arg Asp Ala 340 345 350 | 1294 |
| aag cag agg ctg agt gcc gcc caa gtc ctg cag cac ccc tgg gtt cag Lys Gln Arg Leu Ser Ala Ala Gln Val Leu Gln His Pro Trp Val Gln 355 360 365 | 1342 |
| ggg tgc gcc ccg gag aac acc ttg ccc act ccc atg gtc ctg cag agg Gly Cys Ala Pro Glu Asn Thr Leu Pro Thr Pro Met Val Leu Gln Arg 370 375 380 385 | 1390 |
| aac agc tgt gcc aaa gac ctc acg tcc ttc gcg gct gag gcc att gcc Asn Ser Cys Ala Lys Asp Leu Thr Ser Phe Ala Ala Glu Ala Ile Ala 390 395 400 | 1438 |
| atg aac cgg cag ctg gcc cag cac gac gag gac ctg gct gag gag gag Met Asn Arg Gln Leu Ala Gln His Asp Glu Asp Leu Ala Glu Glu Glu 405 410 415 | 1486 |
| gcc gcg ggg cag ggc cag ccc gtc ctg gtc cga gct acc tca cgc tgc Ala Ala Gly Gln Gly Gln Pro Val Leu Val Arg Ala Thr Ser Arg Cys 420 425 430 | 1534 |
| ctg cag ctg tct cca ccc tcc cag tcc aag ctg gcg cag cgg cgg caa Leu Gln Leu Ser Pro Pro Ser Gln Ser Lys Leu Ala Gln Arg Arg Gln 435 440 445 | 1582 |
| agg gcc agt ctg tcc tcg gcc cca gtg gtc ctg gtg gga gac cac gcc Arg Ala Ser Leu Ser Ser Ala Pro Val Val Leu Val Gly Asp His Ala 450 455 460 465 | 1630 |
| tga cccctcccatc tccccctctgt acataggtca cccgtccccc aatcaaattct | 1683 |
| aaagggttttt taagctatcg ccagccgggtg tccagcgggc tgccccctct ctgcctggat | 1743 |
| tcccaggcac taagctcagc tgaggggggt gttttataga aggtttttgc ttttgggttt | 1803 |
| tttttttctt gtttccaccc ctccccgtta ttttttctt tggatgggta aaagcattgc | 1863 |
| aggcaccggg gaaggtgagc agagggtagg tgggtgggct tgtccccctcc ccggtccccc | 1923 |
| gccctgctca cctctactat gaaggtgccc ccaggtcacc tgtgctgccc gccatctgcc | 1983 |
| cacgtggctt gcagtgactc aggagagcag gcccacagcg tttgccatct tgcagagctg | 2043 |
| gggaggggca caggaccctg ccctcgtgtt ccctcccagc ccgcagtatt tcagggacag | 2103 |
| gctcttcccc tctatccctc accctgagag caccctgggt ggcttggttg gggaaggag | 2163 |

| | |
|--|------|
| gggctgcctg tctctggagg tgtcaggcag gcaggtggca ggcagctcac ccacccaccc | 2223 |
| catgggatcc cccagccctt caccgcgcgc tgccttgtcc ccatgatagt tgacaatcgg | 2283 |
| ggcttcctgc aaggcccgtc tgtctgtcca ggactcctgg tggccagatt cggcctccga | 2343 |
| ccttgacctt aaactgcagc tgaccccagg ggctcgccgc tgccccctcc ctccacacca | 2403 |
| aggcctgaga cagcaggagc cccgcctggc ccgaagccgt ttccaccgca gcaggcagag | 2463 |
| gggctggaca ggcactgtca gccaatgtgg ggggtcctga agacaccccc ttggggcacc | 2523 |
| cgagtgcctc ttctcagggc tcagtctgac cgtagccacg tcctgcctcg cgccgcccc | 2583 |
| cgggcctgac ctggaagctc cgtcagctcc gtccttgtcc ttagagctga gccagaccc | 2643 |
| cggggtctgg ccgaatcctc acccccaggg cagtgttttt ggtctgccac cttcaggaaa | 2703 |
| acggctgcgg cctcgccctc ccttcgggca cccaggaatg cgggggtctg ctcagtcctc | 2763 |
| ccacctcca tgcaccaacc cccgggggct gcggagcctg ctgccccctc cccgcgggtg | 2823 |
| gggacgttct atgcaataca gggttccact ttagaagtgc gcgcggctag ggtcaccgcc | 2883 |
| cgccttccc ggccagcccc ccgagctcca cagctggggc agccccctctg gcttctaaat | 2943 |
| ccgcggctcg gattcttct cctgtttagt tttttagttt ttccttaaaa aaaaacaaca | 3003 |
| catcgatgga ctttgcctcc ctgttcttga agaatacttg aatgtcgggg ggcctggggg | 3063 |
| tgggggcctc ggagaccgtc tgcttgccc tgctgcccct cctgaatctc gtatgatggt | 3123 |
| cacagtccgg tggccgtggg ggtgctctgc cttccctggt cccactgcc catatctgtg | 3183 |
| gactgcccct tccaaagacc cctggggggg gtggggcatt ccgcccaccc ctttccccca | 3243 |
| tcacttctcg cctgtcagtg attccatgtt tcgtaacggg ggattctctg cctttttgta | 3303 |
| tcaaagaaca agcaaatgga ccccccccg ctgcaggcgc ccatagccat cgggtctcta | 3363 |
| aagctgagtg gctagcagcg tttgtttgtt tgtttttttt ttttttctg aaggtgggac | 3423 |
| agtcacttcc tcctccctcc ccacccctgt cgcattccacg tgcgacctgg aggactggtc | 3483 |
| agaaccgtta ctgtgaatga gtgaagatcc tggaggaccc tgggccccag gccagctccc | 3543 |
| atcgctgggg gacggtgaac ggccatgtgt taatgttacg atgtttttta aagacaaaaa | 3603 |
| aaaaaaaaaa acctcaaaag ttttttttaa gtgggggaaa aacatccaag cactttaatt | 3663 |

ccaatgtacc aggtgaactg acggagctca gaagttttcc tttaacaccaa ctgtcaatgc 3723
cggaattttg tattctgttt tgtaaagatt taataaaagt caaaaaactt gcaaaaaaaaa 3783
aaaaaaaaaa aa 3795

<210> 44
<211> 465
<212> PRT
<213> Homo sapiens

<400> 44

Met Val Gln Lys Lys Pro Ala Glu Leu Gln Gly Phe His Arg Ser Phe
1 5 10 15

Lys Gly Gln Asn Pro Phe Glu Leu Ala Phe Ser Leu Asp Gln Pro Asp
20 25 30

His Gly Asp Ser Asp Phe Gly Leu Gln Cys Ser Ala Arg Pro Asp Met
35 40 45

Pro Ala Ser Gln Pro Ile Asp Ile Pro Asp Ala Lys Lys Arg Gly Lys
50 55 60

Lys Lys Lys Arg Gly Arg Ala Thr Asp Ser Phe Ser Gly Arg Phe Glu
65 70 75 80

Asp Val Tyr Gln Leu Gln Glu Asp Val Leu Gly Glu Gly Ala His Ala
85 90 95

Arg Val Gln Thr Cys Ile Asn Leu Ile Thr Ser Gln Glu Tyr Ala Val
100 105 110

Lys Ile Ile Glu Lys Gln Pro Gly His Ile Arg Ser Arg Val Phe Arg
115 120 125

Glu Val Glu Met Leu Tyr Gln Cys Gln Gly His Arg Asn Val Leu Glu
130 135 140

Leu Ile Glu Phe Phe Glu Glu Glu Asp Arg Phe Tyr Leu Val Phe Glu
145 150 155 160

Lys Met Arg Gly Gly Ser Ile Leu Ser His Ile His Lys Arg Arg His
165 170 175

Phe Asn Glu Leu Glu Ala Ser Val Val Val Gln Asp Val Ala Ser Ala
180 185 190

Leu Asp Phe Leu His Asn Lys Gly Ile Ala His Arg Asp Leu Lys Pro
195 200 205

Glu Asn Ile Leu Cys Glu His Pro Asn Gln Val Ser Pro Val Lys Ile
210 215 220

Cys Asp Phe Asp Leu Gly Ser Gly Ile Lys Leu Asn Gly Asp Cys Ser
225 230 235 240

Pro Ile Ser Thr Pro Glu Leu Leu Thr Pro Cys Gly Ser Ala Glu Tyr
245 250 255

Met Ala Pro Glu Val Val Glu Ala Phe Ser Glu Glu Ala Ser Ile Tyr
260 265 270

Asp Lys Arg Cys Asp Leu Trp Ser Leu Gly Val Ile Leu Tyr Ile Leu
275 280 285

Leu Ser Gly Tyr Pro Pro Phe Val Gly Arg Cys Gly Ser Asp Cys Gly
290 295 300

Trp Asp Arg Gly Glu Ala Cys Pro Ala Cys Gln Asn Met Leu Phe Glu
305 310 315 320

Ser Ile Gln Glu Gly Lys Tyr Glu Phe Pro Asp Lys Asp Trp Ala His
325 330 335

Ile Ser Cys Ala Ala Lys Asp Leu Ile Ser Lys Leu Leu Val Arg Asp
340 345 350

Ala Lys Gln Arg Leu Ser Ala Ala Gln Val Leu Gln His Pro Trp Val
 355 360 365

Gln Gly Cys Ala Pro Glu Asn Thr Leu Pro Thr Pro Met Val Leu Gln
 370 375 380

Arg Asn Ser Cys Ala Lys Asp Leu Thr Ser Phe Ala Ala Glu Ala Ile
 385 390 395 400

Ala Met Asn Arg Gln Leu Ala Gln His Asp Glu Asp Leu Ala Glu Glu
 405 410 415

Glu Ala Ala Gly Gln Gly Gln Pro Val Leu Val Arg Ala Thr Ser Arg
 420 425 430

Cys Leu Gln Leu Ser Pro Pro Ser Gln Ser Lys Leu Ala Gln Arg Arg
 435 440 445

Gln Arg Ala Ser Leu Ser Ser Ala Pro Val Val Leu Val Gly Asp His
 450 455 460

Ala
 465

<210> 45
 <211> 631
 <212> DNA
 <213> Homo sapiens

<400> 45
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 gccagccgcc ccgtccggga gggcgggtggg ggggtcagcc cccctcccgg ccagccgcc 120
 catctgggag gtgaggggca cttctgccgg gccgcccta ctgggaagtg aggagcccct 180
 ctgcccgccc acgaccccggt ctgggaggtg tgcccagcgg ctcatctgggg atgggccatg 240
 atgacaatgg cggttttgtg gaatagaaag gcgggaaggg tggggaaaaa attgagaaat 300

| | |
|---|-----|
| cggatggttg cggggtctgt gtggatagaa gtagacatgg gagacttttc attttgttct | 360 |
| gtactaagaa aaattcttct gccttgggat cctgttgatc tgtgacctta tccccaaccc | 420 |
| tgtgctctct gaaacatgtg ctgtgtccac tcagggttaa atggattaag ggcggtgcaa | 480 |
| gatgtgcttt gttaaacaga tgcttgaagg cagcatgctc gttaagagtc atcaccactc | 540 |
| cctaacttta agtaccagg gacacaaaca ctgcggaagg ccgcagggtc ctctgcctag | 600 |
| gaaaaccaga gacctttgtt cacttggtat c | 631 |

<210> 46
 <211> 472
 <212> DNA
 <213> Homo sapiens

| | |
|---|-----|
| <400> 46 | |
| tactgggaag tgaggaaccc ctctgcccg ccagccgcc cgtccgggag ggaggtgggg | 60 |
| ggatcagccc cccgcctggc agccgccccg tccgggaggt gaggggcgcc tctgcccggc | 120 |
| cgccccctact gggaagtgag gagccccctct gcccgccag ccgccccgtc cgggaggggag | 180 |
| gtgggggggt cagccgccgc ccgtccggga cctagctggg caccgatggg ccggcacggg | 240 |
| tacggtggca ggaagcgtca ggcgagcgaa gtgcgcgtaa cagtgccagc gacgacgaga | 300 |
| cgagcaaagg tagtgccgag tgccagtaca tgatgccatc ctcagacgat gggaggcgg | 360 |
| gtcgacgacc cgcgcgctgt actgagcaac aggttacact aagaatacaa cagtgggtcg | 420 |
| cagtgcctat gagagaataa gtgatgacgc gtgtcgagcg attgtaccca ga | 472 |

<210> 47
 <211> 7026
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (420).. (5045)
 <223>

| | |
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| <400> 47 | |
| gacacgcacg caccggggcg ccgaaggga agccgcgtct cgccctccc ccccgccgtc | 60 |
| ggtcctgtct cagtccctca gcagagcggg aaagcggagg ccggagccgt gacctctgac | 120 |

cccgtggtta tgcggagccg ccgcattcct tagcgatcgc ggggcagccg ccgctgccgc 180
cgtgggcgac tgacgcagcg cgggcgcgtg gagccgccgc cggccctccc ccaccgccgc 240
tctcgcgcca gccgggtccc gcgtgcccgcc cctttctccc cggccgcacc cgagacctcg 300
cgcgccgccg ctgccacgcg cccccccac cgccgccgcc gcccagccc cgcgccaccg 360
ccccagcccg ccagcccgg aggtcccgcg tggagctgcc gccgccgccg gggagaagg 419
atg aag gac aaa cag aag aag aag aag gag cgc acg tgg gcc gag gcc 467
Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
1 5 10 15
gcg cgc ctg gta tta gaa aac tac tcg gat gct cca atg aca cca aaa 515
Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
20 25 30
cag att ctg cag gtc ata gag gca gaa gga cta aag gaa atg aga agt 563
Gln Ile Leu Gln Val Ile Glu Ala Glu Gly Leu Lys Glu Met Arg Ser
35 40 45
ggg act tcc cct ctc gca tgc ctc aat gct atg cta cat tcc aat tca 611
Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
50 55 60
aga gga gga gag ggg ttg ttt tat aaa ctg cct ggc cga atc agc ctt 659
Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
65 70 75 80
ttc acg ctc aag aag gat gcc ctg cag tgg tct cgc cat cca gct aca 707
Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
85 90 95
gtg gag gga gag gag cca gag gac acg gct gat gtg gag agc tgt ggg 755
Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
100 105 110
tct aat gaa gcc agc act gtg agt ggt gaa aac gat gta tct ctt gat 803
Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
115 120 125
gaa aca tct tcg aac gca tcc tgt tct aca gaa tct cag agt cga cct 851
Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
130 135 140
ctt tcc aat ccc agg gac agc tac aga gct tcc tca cag gcg aac aaa 899
Leu Ser Asn Pro Arg Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys
145 150 155 160

| | |
|---|------|
| caa aag aaa aag act ggg gtg atg ctg cct cga gtt gtc ctg act cct Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro 165 170 175 | 947 |
| ctg aag gta aac ggg gcc cac gtg gaa tct gca tca ggg ttc tcg ggc Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly 180 185 190 | 995 |
| tgc cac gcc gat ggc gag agc ggc agc ccg tcc agc agc agc agc ggc Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly 195 200 205 | 1043 |
| tct ctg gcc ctg ggc agc gct gct att cgt ggc cag gcc gag gtc acc Ser Leu Ala Leu Gly Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr 210 215 220 | 1091 |
| cag gac cct gcc ccg ctc ctg aga ggc ttc cgg aag cca gcc aca ggt Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly 225 230 235 240 | 1139 |
| caa atg aag cgc aac aga ggg gaa gaa ata gat ttt gag aca cct ggg Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly 245 250 255 | 1187 |
| tcc att ctt gtc aac acc aac ctc cgt gcc ctg atc aac tct cgg acc Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr 260 265 270 | 1235 |
| ttc cat gcc tta cca tca cac ttc cag cag cag ctc ctc ttc ctc ctg Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu 275 280 285 | 1283 |
| cct gaa gta gac aga cag gtg ggg acg gat ggc ctg ttg cgt ctc agc Pro Glu Val Asp Arg Gln Val Gly Thr Asp Gly Leu Leu Arg Leu Ser 290 295 300 | 1331 |
| agc agt gca cta aat aac gag ttt ttt acc cat gcg gct cag agc tgg Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp 305 310 315 320 | 1379 |
| cgg gag cgc ctg gct gat ggt gaa ttt act cat gag atg caa gtc agg Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg 325 330 335 | 1427 |
| ata cga cag gaa atg gag aag gaa aag aag gtg gaa caa tgg aaa gaa Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu 340 345 350 | 1475 |
| aag ttc ttt gaa gac tac tat gga cag aag ctg ggt ttg acc aaa gaa 128/201 | 1523 |

| | |
|---|------|
| Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu | |
| 355 360 365 | |
| gag tca ttg cag cag aac gtg ggc cag gag gag gct gaa atc aaa agt | 1571 |
| Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser | |
| 370 375 380 | |
| ggc ttg tgt gtc cca gga gaa tca gtg cgt ata cag cgt ggt cca gcc | 1619 |
| Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala | |
| 385 390 395 400 | |
| acc cga cag cga gat ggg cat ttt aag aaa cgc tct cgg cca gat ctc | 1667 |
| Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu | |
| 405 410 415 | |
| cga acc aga gcc aga agg aat ctg tac aaa aaa cag gag tca gaa caa | 1715 |
| Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln | |
| 420 425 430 | |
| gca ggg gtt gct aag gat gca aaa tct gtg gcc tca gat gtt ccc ctc | 1763 |
| Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu | |
| 435 440 445 | |
| tac aag gat ggg gag gct aag act gac cca gca ggg ctg agc agt ccc | 1811 |
| Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro | |
| 450 455 460 | |
| cat ctg cca ggc aca tcc tct gca gca ccc gac ctg gag ggt ccc gaa | 1859 |
| His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu | |
| 465 470 475 480 | |
| ttc cca gtt gag tct gtg gct tct cgg atc cag gct gag cca gac aac | 1907 |
| Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn | |
| 485 490 495 | |
| ttg gca cgt gcc tct gca tct cca gac aga att cct agc ctg cct cag | 1955 |
| Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln | |
| 500 505 510 | |
| gaa act gtg gat cag gaa ccc aag gat cag aag agg aaa tcc ttt gag | 2003 |
| Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu | |
| 515 520 525 | |
| cag gcg gcc tct gca tcc ttt ccc gaa aag aag ccc cgg ctt gaa gat | 2051 |
| Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp | |
| 530 535 540 | |
| cgt cag tcc ttt cgt aac aca att gaa agt gtt cac acc gaa aag cca | 2099 |
| Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro | |
| 545 550 555 560 | |

| | |
|---|------|
| cag ccc act aaa gag gag ccc aaa gtc ccg ccc atc cgg att caa ctt Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu 565 570 575 | 2147 |
| tca cgt atc aaa cca ccc tgg gtg gtt aaa ggt cag ccc act tac cag Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln 580 585 590 | 2195 |
| ata tgc ccc cgg atc atc ccc acc acg gag tcc tcc tgc cgg ggt tgg Ile Cys Pro Arg Ile Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp 595 600 605 | 2243 |
| act ggc gcc agg acc ctc gca gac att aaa gcc cgt gct ctg cag gtc Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val 610 615 620 | 2291 |
| cga ggg gcg aga ggt cac cac tgc cat aga gag gcg gcc acc act gcc Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala 625 630 635 640 | 2339 |
| atc gga ggg ggg ggt ggc ccg ggt gga ggt ggc ggc ggg gcc acc gat Ile Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly Gly Ala Thr Asp 645 650 655 | 2387 |
| gag gga ggt ggc aga ggc agc agc agt ggt gat ggt ggt gag gcc tgt Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys 660 665 670 | 2435 |
| ggc cac cct gag ccc agg gga ggc ccg agc acc cct gga aag tgt acg Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr 675 680 685 | 2483 |
| tca gat cta cag cga aca caa cta ctg ccg cct tat cct cta aat ggg Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly 690 695 700 | 2531 |
| gag cat acc cag gcc gga act gcc atg tcc aga gct agg aga gag gac Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp 705 710 715 720 | 2579 |
| ctg cct tct ctg aga aag gag gaa agc tgc cta cta cag agg gct aca Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr 725 730 735 | 2627 |
| gtt gga ctc aca gat ggg cta gga gat gcc tcc caa ctc ccc gtt gct Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala 740 745 750 | 2675 |
| ccc act ggg gac cag cca tgc cag gcc ttg ccc cta ctg tcc tcc caa 130/201 | 2723 |

| | |
|---|------|
| Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln | |
| 755 760 765 | |
| acc tca gta gct gag aga tta gtg gag cag cct cag ttg cat ccg gat | 2771 |
| Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp | |
| 770 775 780 | |
| gtt aga act gaa tgt gag tct ggc acc act tcc tgg gaa agt gat gat | 2819 |
| Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp | |
| 785 790 795 800 | |
| gag gag caa gga ccc acc gtt cct gca gac aat ggt ccc att ccg tct | 2867 |
| Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser | |
| 805 810 815 | |
| cta gtg gga gat gat aca tta gag aaa gga act ggc caa gct ctt gac | 2915 |
| Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp | |
| 820 825 830 | |
| agt cat ccc act atg aag gat cct gta aat gtg acc ccc agt tcc aca | 2963 |
| Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr | |
| 835 840 845 | |
| cct gaa tcc tca ccg act gat tgc ctg cag aac aga gca ttt gat gac | 3011 |
| Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp | |
| 850 855 860 | |
| gaa tta ggg ctt ggt ggc tca tgc cct cct atg agg gaa agt gat act | 3059 |
| Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr | |
| 865 870 875 880 | |
| aga caa gaa aac ttg aaa acc aag gct ctc gtt tct aac agt tct ttg | 3107 |
| Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu | |
| 885 890 895 | |
| cat tgg ata ccc atc cca tcg aat gat gag gta gtg aaa cag ccc aaa | 3155 |
| His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys | |
| 900 905 910 | |
| cca gaa tcc aga gaa cac ata cca tct gtt gag ccc cag gtt gga gag | 3203 |
| Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu | |
| 915 920 925 | |
| gag tgg gag aaa gct gct ccc acc cct cct gca ttg cct ggg gat ttg | 3251 |
| Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu | |
| 930 935 940 | |
| aca gct gag gag ggt cta gat cct ctt gac agc ctt act tca ctc tgg | 3299 |
| Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp | |
| 945 950 955 960 | |

| | |
|---|------|
| act gtg cca tct cga gga ggc agt gac agc aat ggc agt tac tgt caa | 3347 |
| Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln | |
| 965 970 975 | |
| cag gtg gac att gaa aag ctg aaa atc aac gga gac tct gaa gca ctg | 3395 |
| Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu | |
| 980 985 990 | |
| agt cct cac ggt gag tcc acg gat aca gcc tct gac ttt gaa ggt cac | 3443 |
| Ser Pro His Gly Glu Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly His | |
| 995 1000 1005 | |
| ctc acg gag gac agc agt gag gct gac act aga gaa gct gca gtg | 3488 |
| Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val | |
| 1010 1015 1020 | |
| aca aag gga tct tcg gtg gac aag gat gag aaa ccc aat tgg aac | 3533 |
| Thr Lys Gly Ser Ser Val Asp Lys Asp Glu Lys Pro Asn Trp Asn | |
| 1025 1030 1035 | |
| caa tct gcc cca ctg tcc aag gtg aat ggt gac atg cgt ctg gtt | 3578 |
| Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val | |
| 1040 1045 1050 | |
| aca agg aca gat ggg atg gtt gct cct cag agc tgg gtg tct cga | 3623 |
| Thr Arg Thr Asp Gly Met Val Ala Pro Gln Ser Trp Val Ser Arg | |
| 1055 1060 1065 | |
| gta tgt gcg gtc cgc caa aag atc cca gat tcc cta ctg ctg gcc | 3668 |
| Val Cys Ala Val Arg Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala | |
| 1070 1075 1080 | |
| agt act gag tac cag cca aga gcc gtg tgc ctg tcc atg cct ggg | 3713 |
| Ser Thr Glu Tyr Gln Pro Arg Ala Val Cys Leu Ser Met Pro Gly | |
| 1085 1090 1095 | |
| tcc tca gtg gag gcc act aac cca ctt gtg atg cag ttg ctg cag | 3758 |
| Ser Ser Val Glu Ala Thr Asn Pro Leu Val Met Gln Leu Leu Gln | |
| 1100 1105 1110 | |
| ggt agc ttg ccc cta gag aag gtt ctt cca cca gcc cac gat gac | 3803 |
| Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp | |
| 1115 1120 1125 | |
| agc atg tca gaa tcc cca caa gta cca ctt aca aaa gac cag agc | 3848 |
| Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys Asp Gln Ser | |
| 1130 1135 1140 | |
| cat ggc tcg cta cgc atg gga tct tta cat ggt ctt gga aaa aac | 3893 |
| 132/201 | |

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|---------|---------------------|---------------------|-------------|------|
| His Gly | Ser Leu Arg Met Gly | Ser Leu His Gly Leu | Gly Lys Asn | |
| 1145 | 1150 | 1155 | | |
| agt ggc | atg gtt gat gga agc | agc ccc agt tct tta | agg gct ttg | 3938 |
| Ser Gly | Met Val Asp Gly Ser | Ser Pro Ser Ser Leu | Arg Ala Leu | |
| 1160 | 1165 | 1170 | | |
| aag gag | cct ctt ctg cca gat | agc tgt gaa aca ggc | act ggt ctt | 3983 |
| Lys Glu | Pro Leu Leu Pro Asp | Ser Cys Glu Thr Gly | Thr Gly Leu | |
| 1175 | 1180 | 1185 | | |
| gcc agg | att gag gcc acc cag | gct cct gga gca ccc | caa aag aat | 4028 |
| Ala Arg | Ile Glu Ala Thr Gln | Ala Pro Gly Ala Pro | Gln Lys Asn | |
| 1190 | 1195 | 1200 | | |
| tgc aag | gca gtc cca agt ttt | gac tcc ctc cat cca | gtg aca aat | 4073 |
| Cys Lys | Ala Val Pro Ser Phe | Asp Ser Leu His Pro | Val Thr Asn | |
| 1205 | 1210 | 1215 | | |
| ccc att | aca tcc tct agg aaa | ctg gaa gaa atg gat | tcc aaa gag | 4118 |
| Pro Ile | Thr Ser Ser Arg Lys | Leu Glu Glu Met Asp | Ser Lys Glu | |
| 1220 | 1225 | 1230 | | |
| cag ttc | tct tcc ttt agt tgt | gaa gat cag aag gaa | gtc cgt gct | 4163 |
| Gln Phe | Ser Ser Phe Ser Cys | Glu Asp Gln Lys Glu | Val Arg Ala | |
| 1235 | 1240 | 1245 | | |
| atg tca | cag gac agt aat tca | aat gct gct cca gga | aag agc cca | 4208 |
| Met Ser | Gln Asp Ser Asn Ser | Asn Ala Ala Pro Gly | Lys Ser Pro | |
| 1250 | 1255 | 1260 | | |
| gga gat | ctt act acc tcg aga | aca cct cgt ttc tca | tct cca aat | 4253 |
| Gly Asp | Leu Thr Thr Ser Arg | Thr Pro Arg Phe Ser | Ser Pro Asn | |
| 1265 | 1270 | 1275 | | |
| gtg atc | tcc ttt ggt cca gag | cag aca ggt cgg gcc | ctg ggt gat | 4298 |
| Val Ile | Ser Phe Gly Pro Glu | Gln Thr Gly Arg Ala | Leu Gly Asp | |
| 1280 | 1285 | 1290 | | |
| cag agc | aat gtt aca ggc caa | ggg aag aag ctt ttt | ggc tct ggg | 4343 |
| Gln Ser | Asn Val Thr Gly Gln | Gly Lys Lys Leu Phe | Gly Ser Gly | |
| 1295 | 1300 | 1305 | | |
| aat gtg | gct gca acc ctt cag | cgc ccc agg cct gcg | gac ccg atg | 4388 |
| Asn Val | Ala Ala Thr Leu Gln | Arg Pro Arg Pro Ala | Asp Pro Met | |
| 1310 | 1315 | 1320 | | |
| cct ctt | cct gct gag atc cct | cca gtt ttt ccc agt | ggg aag ttg | 4433 |
| Pro Leu | Pro Ala Glu Ile Pro | Pro Val Phe Pro Ser | Gly Lys Leu | |
| 1325 | 1330 | 1335 | | |

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|---|------|
| gga cca agc aca aac tcc atg tct ggt ggg gta cag act cca agg | 4478 |
| Gly Pro Ser Thr Asn Ser Met Ser Gly Gly Val Gln Thr Pro Arg | |
| 1340 1345 1350 | |
| gaa gac tgg gct cca aag cca cat gcc ttt gtt ggc agc gtc aag | 4523 |
| Glu Asp Trp Ala Pro Lys Pro His Ala Phe Val Gly Ser Val Lys | |
| 1355 1360 1365 | |
| aat gag aag act ttt gtg ggg ggt cct ctt aag gca aat gcc gag | 4568 |
| Asn Glu Lys Thr Phe Val Gly Gly Pro Leu Lys Ala Asn Ala Glu | |
| 1370 1375 1380 | |
| aac agg aaa gct act ggg cat agt ccc ctg gaa ctg gtg ggt cac | 4613 |
| Asn Arg Lys Ala Thr Gly His Ser Pro Leu Glu Leu Val Gly His | |
| 1385 1390 1395 | |
| ttg gaa ggg atg ccc ttt gtc atg gac ttg ccc ttc tgg aaa tta | 4658 |
| Leu Glu Gly Met Pro Phe Val Met Asp Leu Pro Phe Trp Lys Leu | |
| 1400 1405 1410 | |
| ccc cga gag cca ggg aag ggg ctc agt gag cct ctg gag cct tct | 4703 |
| Pro Arg Glu Pro Gly Lys Gly Leu Ser Glu Pro Leu Glu Pro Ser | |
| 1415 1420 1425 | |
| tct ctc ccc tcc caa ctc agc atc aag cag gca ttt tat ggg aag | 4748 |
| Ser Leu Pro Ser Gln Leu Ser Ile Lys Gln Ala Phe Tyr Gly Lys | |
| 1430 1435 1440 | |
| ctt tct aaa ctc caa ctg agt tcc acc agc ttt aat tat tcc tct | 4793 |
| Leu Ser Lys Leu Gln Leu Ser Ser Thr Ser Phe Asn Tyr Ser Ser | |
| 1445 1450 1455 | |
| agc tct ccc acc ttt ccc aaa ggc ctt gct gga agt gtg gtg cag | 4838 |
| Ser Ser Pro Thr Phe Pro Lys Gly Leu Ala Gly Ser Val Val Gln | |
| 1460 1465 1470 | |
| ctg agc cac aaa gca aac ttt ggt gcg agc cac agt gca tca ctt | 4883 |
| Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu | |
| 1475 1480 1485 | |
| tcc ttg caa atg ttc act gac agc agc acg gtg gaa agc atc tcg | 4928 |
| Ser Leu Gln Met Phe Thr Asp Ser Ser Thr Val Glu Ser Ile Ser | |
| 1490 1495 1500 | |
| ctc cag tgt gcg tgc agc ctg aaa gcc atg atc atg tgc caa ggc | 4973 |
| Leu Gln Cys Ala Cys Ser Leu Lys Ala Met Ile Met Cys Gln Gly | |
| 1505 1510 1515 | |
| tgc ggt gcg ttc tgt cac gat gac tgt att gga ccc tca aag ctc | 5018 |
| 134/201 | |

Cys Gly Ala Phe Cys His Asp Asp Cys Ile Gly Pro Ser Lys Leu
 1520 1525 1530

tgt gta ttg tgc ctt gtg gtg aga taa taaattatgg ccatgggaaa 5065
 Cys Val Leu Cys Leu Val Val Arg
 1535 1540

cattgtatat ttagtgtgtg tatTTtgata atgattgac ttaaactctgt atacagaata 5125
 tcattgatat aatactcttt aggcaggagc actcttgcct tcccccaaaa tttaactgc 5185
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 tgctctatgc acctctaatt ttttatcatg ttttatatg ttgtacacag tactggctga 6025
 ttctgtaa at ggatgtattg tacagagaac atgaacgtct cticctaatt ttacatcttc 6085
 agcatcattg cattaaagt gtgtaatctc ctctctaca tctgttgtca gagccactga 6145
 gtgctgtgct gctcgacgtg agggtgaaat gattgacttg tgacctgcca ggttgcccga 6205
 tgccctgttg ggtaaccggc tggacctgct gcagcctgca gagccacagt cagcctgccc 6265
 acatgccacc gagcaaacgc atcttgcttt tcacatctct cctcctacag ccttaatggc 6325
 tgcttgctgc catatgtgac aaatcaccac caccagtgtt aagtgttct ggattcatgg 6385

gtgagttccc tgggcagccc ccaggaaggc cttccagatc tggctccagg gtcaccacct 6445
 gtcacagcaa tacctgggac catgctctcc tgggactgtg aggctccttt tgacgtactt 6505
 ttgacatcag gcaggtttgg gaagaaacaa agccatgcct gctcctgcct ctctcccaac 6565
 atgtttccag caagtagatg cccctgtgtg tgttttcctt tgccttgttt cctgccttat 6625
 atcttgtatt tcgacttatt acagagttga gggttcttgc ttaattttaga tcaagtataa 6685
 aatttgtatg acttcaagtc tcattttatc tgaaaggttt ttttctcatt taatctgatg 6745
 tggcattttc gtcactgaa gcatgagtga caagttggga atgatgtggt gatttagaat 6805
 gcagtattgg ccaagtccaa gttgtcaact taagcgtctg tttaacaaag accgggaaca 6865
 ggggccccaa catgtccagt cctcttcttc cctctgctgg aacctttggg gacactcaag 6925
 ggtacagttt gacactgac tgggtccatga ggctgccag agaaagcact gcttctgtat 6985
 gtctctgtg gtattggaac aataaaccg tacaacctgc a 7026

<210> 48
 <211> 1541
 <212> PRT
 <213> Homo sapiens

<400> 48

Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
 1 5 10 15

Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
 20 25 30

Gln Ile Leu Gln Val Ile Glu Ala Glu Gly Leu Lys Glu Met Arg Ser
 35 40 45

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
 50 55 60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
 65 70 75 80

Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
85 90 95

Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
100 105 110

Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
115 120 125

Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
130 135 140

Leu Ser Asn Pro Arg Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys
145 150 155 160

Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro
165 170 175

Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly
180 185 190

Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly
195 200 205

Ser Leu Ala Leu Gly Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr
210 215 220

Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly
225 230 235 240

Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly
245 250 255

Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr
260 265 270

Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu
137/201

275

280

285

Pro Glu Val Asp Arg Gln Val Gly Thr Asp Gly Leu Leu Arg Leu Ser
 290 295 300

Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp
 305 310 315 320

Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg
 325 330 335

Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu
 340 345 350

Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu
 355 360 365

Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser
 370 375 380

Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala
 385 390 395 400

Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu
 405 410 415

Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln
 420 425 430

Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu
 435 440 445

Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro
 450 455 460

His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu
 465 470 475 480

Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn
485 490 495

Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln
500 505 510

Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu
515 520 525

Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp
530 535 540

Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro
545 550 555 560

Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu
565 570 575

Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln
580 585 590

Ile Cys Pro Arg Ile Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp
595 600 605

Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val
610 615 620

Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala
625 630 635 640

Ile Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Ala Thr Asp
645 650 655

Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys
660 665 670

Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr
139/201

675

680

685

Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly
 690 695 700

Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp
 705 710 715 720

Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr
 725 730 735

Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala
 740 745 750

Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln
 755 760 765

Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp
 770 775 780

Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp
 785 790 795 800

Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser
 805 810 815

Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp
 820 825 830

Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr
 835 840 845

Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp
 850 855 860

Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr
 865 870 875 880

Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu
885 890 895

His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys
900 905 910

Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu
915 920 925

Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu
930 935 940

Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp
945 950 955 960

Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln
965 970 975

Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu
980 985 990

Ser Pro His Gly Glu Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly His
995 1000 1005

Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val
1010 1015 1020

Thr Lys Gly Ser Ser Val Asp Lys Asp Glu Lys Pro Asn Trp Asn
1025 1030 1035

Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val
1040 1045 1050

Thr Arg Thr Asp Gly Met Val Ala Pro Gln Ser Trp Val Ser Arg
1055 1060 1065

Val Cys Ala Val Arg Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala
141/201

| | | |
|---|------|------|
| 1070 | 1075 | 1080 |
| Ser Thr Glu Tyr Gln Pro Arg Ala Val Cys Leu Ser Met Pro Gly | | |
| 1085 | 1090 | 1095 |
| Ser Ser Val Glu Ala Thr Asn Pro Leu Val Met Gln Leu Leu Gln | | |
| 1100 | 1105 | 1110 |
| Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp | | |
| 1115 | 1120 | 1125 |
| Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys Asp Gln Ser | | |
| 1130 | 1135 | 1140 |
| His Gly Ser Leu Arg Met Gly Ser Leu His Gly Leu Gly Lys Asn | | |
| 1145 | 1150 | 1155 |
| Ser Gly Met Val Asp Gly Ser Ser Pro Ser Ser Leu Arg Ala Leu | | |
| 1160 | 1165 | 1170 |
| Lys Glu Pro Leu Leu Pro Asp Ser Cys Glu Thr Gly Thr Gly Leu | | |
| 1175 | 1180 | 1185 |
| Ala Arg Ile Glu Ala Thr Gln Ala Pro Gly Ala Pro Gln Lys Asn | | |
| 1190 | 1195 | 1200 |
| Cys Lys Ala Val Pro Ser Phe Asp Ser Leu His Pro Val Thr Asn | | |
| 1205 | 1210 | 1215 |
| Pro Ile Thr Ser Ser Arg Lys Leu Glu Glu Met Asp Ser Lys Glu | | |
| 1220 | 1225 | 1230 |
| Gln Phe Ser Ser Phe Ser Cys Glu Asp Gln Lys Glu Val Arg Ala | | |
| 1235 | 1240 | 1245 |
| Met Ser Gln Asp Ser Asn Ser Asn Ala Ala Pro Gly Lys Ser Pro | | |
| 1250 | 1255 | 1260 |

Gly Asp Leu Thr Thr Ser Arg Thr Pro Arg Phe Ser Ser Pro Asn
1265 1270 1275

Val Ile Ser Phe Gly Pro Glu Gln Thr Gly Arg Ala Leu Gly Asp
1280 1285 1290

Gln Ser Asn Val Thr Gly Gln Gly Lys Lys Leu Phe Gly Ser Gly
1295 1300 1305

Asn Val Ala Ala Thr Leu Gln Arg Pro Arg Pro Ala Asp Pro Met
1310 1315 1320

Pro Leu Pro Ala Glu Ile Pro Pro Val Phe Pro Ser Gly Lys Leu
1325 1330 1335

Gly Pro Ser Thr Asn Ser Met Ser Gly Gly Val Gln Thr Pro Arg
1340 1345 1350

Glu Asp Trp Ala Pro Lys Pro His Ala Phe Val Gly Ser Val Lys
1355 1360 1365

Asn Glu Lys Thr Phe Val Gly Gly Pro Leu Lys Ala Asn Ala Glu
1370 1375 1380

Asn Arg Lys Ala Thr Gly His Ser Pro Leu Glu Leu Val Gly His
1385 1390 1395

Leu Glu Gly Met Pro Phe Val Met Asp Leu Pro Phe Trp Lys Leu
1400 1405 1410

Pro Arg Glu Pro Gly Lys Gly Leu Ser Glu Pro Leu Glu Pro Ser
1415 1420 1425

Ser Leu Pro Ser Gln Leu Ser Ile Lys Gln Ala Phe Tyr Gly Lys
1430 1435 1440

Leu Ser Lys Leu Gln Leu Ser Ser Thr Ser Phe Asn Tyr Ser Ser
143/201

1445

1450

1455

Ser Ser Pro Thr Phe Pro Lys Gly Leu Ala Gly Ser Val Val Gln.
 1460 1465 1470

Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu
 1475 1480 1485

Ser Leu Gln Met Phe Thr Asp Ser Ser Thr Val Glu Ser Ile Ser
 1490 1495 1500

Leu Gln Cys Ala Cys Ser Leu Lys Ala Met Ile Met Cys Gln Gly
 1505 1510 1515

Cys Gly Ala Phe Cys His Asp Asp Cys Ile Gly Pro Ser Lys Leu
 1520 1525 1530

Cys Val Leu Cys Leu Val Val Arg
 1535 1540

<210> 49
 <211> 3124
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (313).. (1731)
 <223>

<400> 49
 taagatccac atcagctcaa ctgcacttgc ctcgcagagg cagcccgcctc acttcccgcg 60
 gaggcgctcc ccggcgccgc gctccgcggc agccgcctgc ccccggcgct gccccgcgcc 120
 gccgcgccgc cgccgccgcc gcgcacgccg cgccccgcag ctctgggctt cctcttcgcc 180
 cgggtggcgt tgggcccgcg cgggcgctcg ggtgactgca gctgctcagc tcccccccc 240
 cgccccgcgc cgcgcggccg cccgtcgctt cgcacagggc tggatggttg tattgggcag 300
 ggtggctcca gg atg tta gga act gtg aag atg gaa ggg cat gaa acc agc 351
 Met Leu Gly Thr Val Lys Met Glu Gly His Glu Thr Ser
 144/201

| 1 | 5 | 10 | |
|---|-----|-----|-----|
| gac tgg aac agc tac tac gca gac acg cag gag gcc tac tcc tcc gtc | | | 399 |
| Asp Trp Asn Ser Tyr Tyr Ala Asp Thr Gln Glu Ala Tyr Ser Ser Val | | | |
| 15 | 20 | 25 | |
| ccg gtc agc aac atg aac tca ggc ctg ggc tcc atg aac tcc atg aac | | | 447 |
| Pro Val Ser Asn Met Asn Ser Gly Leu Gly Ser Met Asn Ser Met Asn | | | |
| 30 | 35 | 40 | 45 |
| acc tac atg acc atg aac acc atg act acg agc ggc aac atg acc ccg | | | 495 |
| Thr Tyr Met Thr Met Asn Thr Met Thr Thr Ser Gly Asn Met Thr Pro | | | |
| 50 | 55 | 60 | |
| gcg tcc ttc aac atg tcc tat gcc aac ccg ggc cta ggg gcc ggc ctg | | | 543 |
| Ala Ser Phe Asn Met Ser Tyr Ala Asn Pro Gly Leu Gly Ala Gly Leu | | | |
| 65 | 70 | 75 | |
| agt ccc ggc gca gta gcc ggc atg ccg ggg ggc tcg gcg ggc gcc atg | | | 591 |
| Ser Pro Gly Ala Val Ala Gly Met Pro Gly Gly Ser Ala Gly Ala Met | | | |
| 80 | 85 | 90 | |
| aac agc atg act gcg gcc ggc gtg acg gcc atg ggt acg gcg ctg agc | | | 639 |
| Asn Ser Met Thr Ala Ala Gly Val Thr Ala Met Gly Thr Ala Leu Ser | | | |
| 95 | 100 | 105 | |
| ccg agc ggc atg ggc gcc atg ggt gcg cag cag gcg gcc tcc atg aat | | | 687 |
| Pro Ser Gly Met Gly Ala Met Gly Ala Gln Gln Ala Ala Ser Met Asn | | | |
| 110 | 115 | 120 | 125 |
| ggc ctg ggc ccc tac gcg gcc gcc atg aac ccg tgc atg agc ccc atg | | | 735 |
| Gly Leu Gly Pro Tyr Ala Ala Ala Met Asn Pro Cys Met Ser Pro Met | | | |
| 130 | 135 | 140 | |
| gcg tac gcg ccg tcc aac ctg ggc cgc agc cgc gcg ggc ggc ggc ggc | | | 783 |
| Ala Tyr Ala Pro Ser Asn Leu Gly Arg Ser Arg Ala Gly Gly Gly Gly | | | |
| 145 | 150 | 155 | |
| gac gcc aag acg ttc aag cgc agc tac ccg cac gcc aag ccg ccc tac | | | 831 |
| Asp Ala Lys Thr Phe Lys Arg Ser Tyr Pro His Ala Lys Pro Pro Tyr | | | |
| 160 | 165 | 170 | |
| tcg tac atc tcg ctc atc acc atg gcc atc cag cag gcg ccc agc aag | | | 879 |
| Ser Tyr Ile Ser Leu Ile Thr Met Ala Ile Gln Gln Ala Pro Ser Lys | | | |
| 175 | 180 | 185 | |
| atg ctc acg ctg agc gag atc tac cag tgg atc atg gac ctc ttc ccc | | | 927 |
| Met Leu Thr Leu Ser Glu Ile Tyr Gln Trp Ile Met Asp Leu Phe Pro | | | |
| 190 | 195 | 200 | 205 |

| | |
|---|------|
| tat tac cgg cag aac cag cag cgc tgg cag aac tcc atc cgc cac tcg Tyr Tyr Arg Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg His Ser 210 215 220 | 975 |
| ctg tcc ttc aat gac tgc ttc gtc aag gtg gca cgc tcc ccg gac aag Leu Ser Phe Asn Asp Cys Phe Val Lys Val Ala Arg Ser Pro Asp Lys 225 230 235 | 1023 |
| ccg ggc aag ggc tcc tac tgg acg ctg cac ccg gac tcc ggc aac atg Pro Gly Lys Gly Ser Tyr Trp Thr Leu His Pro Asp Ser Gly Asn Met 240 245 250 | 1071 |
| ttc gag aac ggc tgc tac ttg cgc cgc cag aag cgc ttc aag tgc gag Phe Glu Asn Gly Cys Tyr Leu Arg Arg Gln Lys Arg Phe Lys Cys Glu 255 260 265 | 1119 |
| aag cag ccg ggg gcc ggc ggc ggg ggc ggg agc gga agc ggg ggc agc Lys Gln Pro Gly Ala Gly Gly Gly Gly Gly Ser Gly Ser Gly Gly Ser 270 275 280 285 | 1167 |
| ggc gcc aag ggc ggc cct gag agc cgc aag gac ccc tct ggc gcc tct Gly Ala Lys Gly Gly Pro Glu Ser Arg Lys Asp Pro Ser Gly Ala Ser 290 295 300 | 1215 |
| aac ccc agc gcc gac tcg ccc ctc cat cgg ggt gtg cac ggg aag acc Asn Pro Ser Ala Asp Ser Pro Leu His Arg Gly Val His Gly Lys Thr 305 310 315 | 1263 |
| ggc cag cta gag ggc gcg ccg gcc ccc ggg ccc gcc gcc agc ccc cag Gly Gln Leu Glu Gly Ala Pro Ala Pro Gly Pro Ala Ala Ser Pro Gln 320 325 330 | 1311 |
| act ctg gac cac agt ggg gcg acg gcg aca ggg ggc gcc tcg gag ttg Thr Leu Asp His Ser Gly Ala Thr Ala Thr Gly Gly Ala Ser Glu Leu 335 340 345 | 1359 |
| aag act cca gcc tcc tca act gcg ccc ccc ata agc tcc ggg ccc ggg Lys Thr Pro Ala Ser Ser Thr Ala Pro Pro Ile Ser Ser Gly Pro Gly 350 355 360 365 | 1407 |
| gcg ctg gcc tct gtg ccc gcc tct cac ccg gca cac ggc ttg gca ccc Ala Leu Ala Ser Val Pro Ala Ser His Pro Ala His Gly Leu Ala Pro 370 375 380 | 1455 |
| cac gag tcc cag ctg cac ctg aaa ggg gac ccc cac tac tcc ttc aac His Glu Ser Gln Leu His Leu Lys Gly Asp Pro His Tyr Ser Phe Asn 385 390 395 | 1503 |
| cac ccg ttc tcc atc aac aac ctc atg tcc tcc tcg gag cag cag cat His Pro Phe Ser Ile Asn Asn Leu Met Ser Ser Ser Glu Gln Gln His 146/201 | 1551 |

| 400 | 405 | 410 | |
|--|-----|-----|------|
| aag ctg gac ttc aag gca tac gaa cag gca ctg caa tac tcg cct tac | | | 1599 |
| Lys Leu Asp Phe Lys Ala Tyr Glu Gln Ala Leu Gln Tyr Ser Pro Tyr | | | |
| 415 | 420 | 425 | |
| ggc tct acg ttg ccc gcc agc ctg cct cta ggc agc gcc tcg gtg acc | | | 1647 |
| Gly Ser Thr Leu Pro Ala Ser Leu Pro Leu Gly Ser Ala Ser Val Thr | | | |
| 430 | 435 | 440 | 445 |
| acc agg agc ccc atc gag ccc tca gcc ctg gag ccg gcg tac tac caa | | | 1695 |
| Thr Arg Ser Pro Ile Glu Pro Ser Ala Leu Glu Pro Ala Tyr Tyr Gln | | | |
| 450 | 455 | 460 | |
| ggt gtg tat tcc aga ccc gtc cta aac act tcc tag ctcccgggac | | | 1741 |
| Gly Val Tyr Ser Arg Pro Val Leu Asn Thr Ser | | | |
| 465 | 470 | | |
| tgggggggttt gtctggcata gccatgctgg tagcaagaga gaaaaaatca acagcaaaca | | | 1801 |
| aaaccacaca aaccaaaccg tcaacagcat aataaaatcc caacaactat ttttatttca | | | 1861 |
| tttttcatgc acaacctttc ccccagtgc aaagactgtt actttattat tgtattcaaa | | | 1921 |
| attcattgtg tatattacta caaagacaac cccaaaccaa ttttttcct gcgaagtta | | | 1981 |
| atgatccaca agtgtatata tgaaattctc ctcttctctt gccccctct ctttcttccc | | | 2041 |
| tctttcccct ccagacattc tagtttgtgg agggttattt aaaaaaaca aaaaggaaga | | | 2101 |
| tgggtcaagtt tgtaaaatat ttgtttgtgc tttttccccc tccttacctg accccctacg | | | 2161 |
| agtttacagg tctgtggcaa tactcttaac cataagaatt gaaatggtga agaaacaagt | | | 2221 |
| atacactaga ggctcttaaa agtattgaaa gacaatactg ctgttatata gcaagacata | | | 2281 |
| aacagattat aaacatcaga gccatttgc tctcagtta catttctgat acatgcagat | | | 2341 |
| agcagatgtc tttaaataaa atacatgtat attgtgtatg gacttaatta tgcacatgct | | | 2401 |
| cagatgtgta gacatcctcc gtatatttac ataacatata gaggtaatag ataggtgata | | | 2461 |
| tacatgatac attctcaaga gttgcttgac cgaaagtac aaggacccca acccctttgt | | | 2521 |
| cctctctacc cacagatggc cctgggaatc aattcctcag gaattgccct caagaactct | | | 2581 |
| gcttcttgc ttgcagagtg ccatggatcat gtcattctga ggtcacataa cacataaaat | | | 2641 |
| tagtttctat gagtgatac catttaaaga atttttttt cagtaaaagg gaatattaca | | | 2701 |

atgttggagg agagataagt tatagggagc tggatttcaa aacgtggtcc aagattcaaa 2761
 aatcctattg atagtggcca ttttaatcat tgccatcgtg tgcttgtttc atccagtgtt 2821
 atgcactttc cacagttgga catggtgtta gtatagccag acgggtttca ttattatttc 2881
 tctttgcttt ctcaatgtta atttattgca tggtttattc tttttcttta cagctgaaat 2941
 tgctttaaat gatggttaaa attacaaatt aaattgttaa tttttatcaa tgtgattgta 3001
 attaaaaata ttttgattta aataacaaaa ataataccag attttaagcc gtggaaaatg 3061
 ttcttgatca tttgcagtta aggactttta ataaatcaaa tgtaacaaaa aaaaaaaaaa 3121
 aaa 3124

<210> 50
 <211> 472
 <212> PRT
 <213> Homo sapiens

<400> 50

Met Leu Gly Thr Val Lys Met Glu Gly His Glu Thr Ser Asp Trp Asn
 1 5 10 15

Ser Tyr Tyr Ala Asp Thr Gln Glu Ala Tyr Ser Ser Val Pro Val Ser
 20 25 30

Asn Met Asn Ser Gly Leu Gly Ser Met Asn Ser Met Asn Thr Tyr Met
 35 40 45

Thr Met Asn Thr Met Thr Thr Ser Gly Asn Met Thr Pro Ala Ser Phe
 50 55 60

Asn Met Ser Tyr Ala Asn Pro Gly Leu Gly Ala Gly Leu Ser Pro Gly
 65 70 75 80

Ala Val Ala Gly Met Pro Gly Gly Ser Ala Gly Ala Met Asn Ser Met
 85 90 95

Thr Ala Ala Gly Val Thr Ala Met Gly Thr Ala Leu Ser Pro Ser Gly
 100 105 110

148/201

Met Gly Ala Met Gly Ala Gln Gln Ala Ala Ser Met Asn Gly Leu Gly
115 120 125

Pro Tyr Ala Ala Ala Met Asn Pro Cys Met Ser Pro Met Ala Tyr Ala
130 135 140

Pro Ser Asn Leu Gly Arg Ser Arg Ala Gly Gly Gly Gly Asp Ala Lys
145 150 155 160

Thr Phe Lys Arg Ser Tyr Pro His Ala Lys Pro Pro Tyr Ser Tyr Ile
165 170 175

Ser Leu Ile Thr Met Ala Ile Gln Gln Ala Pro Ser Lys Met Leu Thr
180 185 190

Leu Ser Glu Ile Tyr Gln Trp Ile Met Asp Leu Phe Pro Tyr Tyr Arg
195 200 205

Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg His Ser Leu Ser Phe
210 215 220

Asn Asp Cys Phe Val Lys Val Ala Arg Ser Pro Asp Lys Pro Gly Lys
225 230 235 240

Gly Ser Tyr Trp Thr Leu His Pro Asp Ser Gly Asn Met Phe Glu Asn
245 250 255

Gly Cys Tyr Leu Arg Arg Gln Lys Arg Phe Lys Cys Glu Lys Gln Pro
260 265 270

Gly Ala Gly Gly Gly Gly Gly Ser Gly Ser Gly Gly Ser Gly Ala Lys
275 280 285

Gly Gly Pro Glu Ser Arg Lys Asp Pro Ser Gly Ala Ser Asn Pro Ser
290 295 300

Ala Asp Ser Pro Leu His Arg Gly Val His Gly Lys Thr Gly Gln Leu
305 310 315 320

Glu Gly Ala Pro Ala Pro Gly Pro Ala Ala Ser Pro Gln Thr Leu Asp
325 330 335

His Ser Gly Ala Thr Ala Thr Gly Gly Ala Ser Glu Leu Lys Thr Pro
340 345 350

Ala Ser Ser Thr Ala Pro Pro Ile Ser Ser Gly Pro Gly Ala Leu Ala
355 360 365

Ser Val Pro Ala Ser His Pro Ala His Gly Leu Ala Pro His Glu Ser
370 375 380

Gln Leu His Leu Lys Gly Asp Pro His Tyr Ser Phe Asn His Pro Phe
385 390 395 400

Ser Ile Asn Asn Leu Met Ser Ser Ser Glu Gln Gln His Lys Leu Asp
405 410 415

Phe Lys Ala Tyr Glu Gln Ala Leu Gln Tyr Ser Pro Tyr Gly Ser Thr
420 425 430

Leu Pro Ala Ser Leu Pro Leu Gly Ser Ala Ser Val Thr Thr Arg Ser
435 440 445

Pro Ile Glu Pro Ser Ala Leu Glu Pro Ala Tyr Tyr Gln Gly Val Tyr
450 455 460

Ser Arg Pro Val Leu Asn Thr Ser
465 470

<210> 51
<211> 3780
<212> DNA
<213> Homo sapiens

<220>

<221> CDS
 <222> (960).. (2282)
 <223>

<400> 51
 agagcgctgc cgccgcccgt ttcgcccggg agccggggggc cgggcgccat catgctgagc 60
 cggctcgggg cgctgctgca ggaagccgtg ggggcgcgcg agcccagcat tgacctgctg 120
 caggccttcg tggagcactg gaagggcatc acgcactact acatcgagag cacagatgaa 180
 agcacccccg ccaagaagac agacattccc tggcggctga agcagatgct ggatatactg 240
 gtgtatgaag agcagcagca ggcggccgcg ggtgaggcag ggccctgcct ggagtacctg 300
 ctgcagcaca agatcctgga gactctctgc acgctgggca aggccagta cccccaggc 360
 atgcggcagc aggtgttcca gttcttcagc aaggttctgg cgcaggtgca gcacccccctg 420
 ctgcattacc tcagcgtcca caggcctgtg cagaaactcc tccgacttgg tgggactgct 480
 tccgatccg ttacagaaaa ggaggaggtg cagttcacca cegtcctctg ctccaagatc 540
 cagcaggacc cagagctgct cgcctacatc ctggaaggta aaaagattgt aggtaggaag 600
 aaagcatgcg gagaaccac tgccctgcct aaggacacaa ccagccacgg ggacaaggac 660
 tgctcccacg atggtgctcc tgccaggccc cagctggacg gggagtcctg tggggcccag 720
 gccttgaaca gccacatgcc tgctgagacc gaggagctgg acggtgggac cacagagagc 780
 aacctgatta cctccctgct tgggctgtgc cagagcaaga agagtcgggt ggccttgaag 840
 gcccaggaga acctgctgct cctgggtgagc atggcctccc cagcagctgc cacctacctg 900
 gtacagagca gcgcctgctg ccctgcgac gtccggcact ttgccagttg taccgggtcc 959
 atg cct gtc ttc ctg gac ccc gca gac att gcc acc tta gag ggc atc 1007
 Met Pro Val Phe Leu Asp Pro Ala Asp Ile Ala Thr Leu Glu Gly Ile
 1 5 10 15
 agc tgg agg tta ccc agt gcc ccg tct gat gag gct tcc ttc cct ggc 1055
 Ser Trp Arg Leu Pro Ser Ala Pro Ser Asp Glu Ala Ser Phe Pro Gly
 20 25 30
 aag gag gcc ttg gct gcc ttc ttg ggc tgg ttt gat tac tgc gac cac 1103
 Lys Glu Ala Leu Ala Ala Phe Leu Gly Trp Phe Asp Tyr Cys Asp His
 35 40 45
 ctc atc aca gag gca cac acg gtg gtt gcg gac gcc ttg gcg aag gct 1151
 151/201

| | |
|---|------|
| Leu Ile Thr Glu Ala His Thr Val Val Ala Asp Ala Leu Ala Lys Ala | |
| 50 55 60 | |
| gtg gct gag aac ttc ttc gtg gag acc ctg cag ccc cag ctc ctg cac | 1199 |
| Val Ala Glu Asn Phe Phe Val Glu Thr Leu Gln Pro Gln Leu Leu His | |
| 65 70 75 80 | |
| gtg tcc gag cag agc atc ttg acc tcc acc gcc ctc ctc aca gcc atg | 1247 |
| Val Ser Glu Gln Ser Ile Leu Thr Ser Thr Ala Leu Leu Thr Ala Met | |
| 85 90 95 | |
| ctg cgc cag ctt cgc tcc cct gcg ctg ctg cgg gag gcc gtg gct ttc | 1295 |
| Leu Arg Gln Leu Arg Ser Pro Ala Leu Leu Arg Glu Ala Val Ala Phe | |
| 100 105 110 | |
| ctc ctg ggc aca gac cgg cag cct gaa gcc ccc ggg gac aac ccc cac | 1343 |
| Leu Leu Gly Thr Asp Arg Gln Pro Glu Ala Pro Gly Asp Asn Pro His | |
| 115 120 125 | |
| acc ctg tat gct cat ctc atc ggg cat tgt gac cac ctc tct gat gag | 1391 |
| Thr Leu Tyr Ala His Leu Ile Gly His Cys Asp His Leu Ser Asp Glu | |
| 130 135 140 | |
| atc agc atc acc aca ctc cgg ctg ttt gag gag ctg ctg cag aag ccc | 1439 |
| Ile Ser Ile Thr Thr Leu Arg Leu Phe Glu Glu Leu Leu Gln Lys Pro | |
| 145 150 155 160 | |
| cac gag ggg atc atc cac agc ctg gtc ctg cgc aac ctt gag ggc cgc | 1487 |
| His Glu Gly Ile Ile His Ser Leu Val Leu Arg Asn Leu Glu Gly Arg | |
| 165 170 175 | |
| cct tac gtg gcc tgg ggc tca cca gag cct gag agc tat gag gac acc | 1535 |
| Pro Tyr Val Ala Trp Gly Ser Pro Glu Pro Glu Ser Tyr Glu Asp Thr | |
| 180 185 190 | |
| cta gac ctg gag gaa gac ccc tac ttc acc gac agc ttc ctg gat tcc | 1583 |
| Leu Asp Leu Glu Glu Asp Pro Tyr Phe Thr Asp Ser Phe Leu Asp Ser | |
| 195 200 205 | |
| ggc ttt caa act ccc gca aag cct cgc cta gct cct gct acc agt tac | 1631 |
| Gly Phe Gln Thr Pro Ala Lys Pro Arg Leu Ala Pro Ala Thr Ser Tyr | |
| 210 215 220 | |
| gat ggc aaa aca gca gtg acc gag atc gtc aac agt ttc ctg tgc ctg | 1679 |
| Asp Gly Lys Thr Ala Val Thr Glu Ile Val Asn Ser Phe Leu Cys Leu | |
| 225 230 235 240 | |
| gtc ccc gag gaa gcc aag acc tct gcc ttc ctg gag gag aca ggc tat | 1727 |
| Val Pro Glu Glu Ala Lys Thr Ser Ala Phe Leu Glu Glu Thr Gly Tyr | |
| 245 250 255 | |

| | |
|---|------|
| gac aca tac gtc cac gat gct tat ggc ctg ttc cag gag tgc agc tcc Asp Thr Tyr Val His Asp Ala Tyr Gly Leu Phe Gln Glu Cys Ser Ser 260 265 270 | 1775 |
| cgc gtc gcc tcc tgg ggc tgg cct ctg acc ccc aca cct ttg gac ccc Arg Val Ala Ser Trp Gly Trp Pro Leu Thr Pro Thr Pro Leu Asp Pro 275 280 285 | 1823 |
| cat gag ccc gag cga cct ttc ttc gag ggc cac ttc ctc cga gtg ctg His Glu Pro Glu Arg Pro Phe Phe Glu Gly His Phe Leu Arg Val Leu 290 295 300 | 1871 |
| ttt gac cgc atg tcc cgg att ctg gat cag cca tac agc ctg aac ctg Phe Asp Arg Met Ser Arg Ile Leu Asp Gln Pro Tyr Ser Leu Asn Leu 305 310 315 320 | 1919 |
| cag gtg acc tcg gtc ctg tcc cgg ctt gcc ctc ttc ccc cac ccc cat Gln Val Thr Ser Val Leu Ser Arg Leu Ala Leu Phe Pro His Pro His 325 330 335 | 1967 |
| att cat gag tac ctg ctg gat ccg tac atc agc ctg gcc ccc ggc tgc Ile His Glu Tyr Leu Leu Asp Pro Tyr Ile Ser Leu Ala Pro Gly Cys 340 345 350 | 2015 |
| agg agc cta ttc tcc gtg ttg gtg agg gtg atc ggg gac ttg atg cag Arg Ser Leu Phe Ser Val Leu Val Arg Val Ile Gly Asp Leu Met Gln 355 360 365 | 2063 |
| aga atc cag agg gta ccc cag ttc cca ggc aag ctg ctc ctg gtg cgc Arg Ile Gln Arg Val Pro Gln Phe Pro Gly Lys Leu Leu Leu Val Arg 370 375 380 | 2111 |
| aag cag ttg acg ggc cag gct cct ggg gag cag ctg gac cac cag acc Lys Gln Leu Thr Gly Gln Ala Pro Gly Glu Gln Leu Asp His Gln Thr 385 390 395 400 | 2159 |
| ctc ctc cag ggc gtg gtg gtg ctg gag gag ttc tgc aag gag ctg gct Leu Leu Gln Gly Val Val Val Leu Glu Glu Phe Cys Lys Glu Leu Ala 405 410 415 | 2207 |
| gcc att gcc ttc gtc aag ttt ccc cca cat gat cct cgc cag aac gtc Ala Ile Ala Phe Val Lys Phe Pro Pro His Asp Pro Arg Gln Asn Val 420 425 430 | 2255 |
| tcc cca gcc ccg gaa ggg cag gtc tga gccagcacca gggcggtggg Ser Pro Ala Pro Glu Gly Gln Val 435 440 | 2302 |
| agactcctgt ccacacctct gccccagagc tgcctcctgc ctggcactgc cgccacactc 153/201 | 2362 |

| | |
|--|------|
| ccctcctggg atggggcttc tgctcccggg ctcaactcaag gagactgcgg catgttgacc | 2422 |
| acaccagact gggtttcagg gaatgggcat gccaggtgcc aaggagccaa acagatggct | 2482 |
| ttccaggcag caaggtcctt ggggccttct tggaggagct tgggtgacag ccaggtgagc | 2542 |
| accagaccc cagaccctca tgtgctgtgt gcctggcccc ttctgtactg gccatttgtg | 2602 |
| gccagggcca agcctgtgac tcaactccag gggcaagatg gggagtgagc tgatggctcc | 2662 |
| gagactggtc aggagcccag gccagtgaga tggggccttg agccttgtct gtgtcacatt | 2722 |
| aggtaccatg ggagctgctg agacctgaca ttttgtcccc tgcttacctg gcttggccca | 2782 |
| tggagaagga gcagtgaatg ggatcgctcg ggaagcccct cttcctgctc tgctcccctg | 2842 |
| gaaactgttg caaaactccc agccgcctca tggcaaatgc ccaaagcatg ttccgcaccc | 2902 |
| aggcgggggc ccctgctaata gagaaccttg gtgcagctgc agccaggagg ggagcggg | 2962 |
| caggagccag gctcaggctc agctgggtcc tctctggcgc cttctgaacc cgtctcagca | 3022 |
| ggtccacagc acctgggcag aggtcagaga ccaggggagg ccgggccttg ccctcccttc | 3082 |
| tgcccagggc ccagtgttct tgatagaaga cccttctggg gagccaggga gctcagggga | 3142 |
| cagataaggg aaggacgccc cctgactcca ggcccctgag cctggcggga agtggtctgcg | 3202 |
| gcccaggcag ccagtcctgg tgggtgttct cctgcatgcc ctccgtggct gggctgccac | 3262 |
| cccacccggc ccgaatctgt cttgacctgc aggaatacac gggcggcgcc aggcattacc | 3322 |
| tcacagcggg actacacagt tgctggcttt gctcctgggc aaggaggagc aggccagagc | 3382 |
| ctcttttgc tctttttctt gcccatgccg cttctagaag ccaggcacag gttgccaaga | 3442 |
| ggtgacacga aacaggagga aactcagtga cctctgcctc tcccacattc ctccccgcgg | 3502 |
| gggaggacct cgccgctctg aagagcaccc tgcacatgtg ggtgcacaaa cgtgggtgtt | 3562 |
| ggtgtggacg gggcgcagat ctccgtggat gaactgcgtc tggactctta gattcataaa | 3622 |
| atattcgagg gtttgggagt cacagaccct cccctctcct cagtgcactt tggcatttgc | 3682 |
| acggtgtctt ccccgacag cacagcaata aatggtgtga ttgcgtggaa aaaaaaaaaa | 3742 |
| aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa | 3780 |

<210> 52
<211> 440
<212> PRT
<213> Homo sapiens

<400> 52

Met Pro Val Phe Leu Asp Pro Ala Asp Ile Ala Thr Leu Glu Gly Ile
1 5 10 15

Ser Trp Arg Leu Pro Ser Ala Pro Ser Asp Glu Ala Ser Phe Pro Gly
20 25 30

Lys Glu Ala Leu Ala Ala Phe Leu Gly Trp Phe Asp Tyr Cys Asp His
35 40 45

Leu Ile Thr Glu Ala His Thr Val Val Ala Asp Ala Leu Ala Lys Ala
50 55 60

Val Ala Glu Asn Phe Phe Val Glu Thr Leu Gln Pro Gln Leu Leu His
65 70 75 80

Val Ser Glu Gln Ser Ile Leu Thr Ser Thr Ala Leu Leu Thr Ala Met
85 90 95

Leu Arg Gln Leu Arg Ser Pro Ala Leu Leu Arg Glu Ala Val Ala Phe
100 105 110

Leu Leu Gly Thr Asp Arg Gln Pro Glu Ala Pro Gly Asp Asn Pro His
115 120 125

Thr Leu Tyr Ala His Leu Ile Gly His Cys Asp His Leu Ser Asp Glu
130 135 140

Ile Ser Ile Thr Thr Leu Arg Leu Phe Glu Glu Leu Leu Gln Lys Pro
145 150 155 160

His Glu Gly Ile Ile His Ser Leu Val Leu Arg Asn Leu Glu Gly Arg
165 170 175

Pro Tyr Val Ala Trp Gly Ser Pro Glu Pro Glu Ser Tyr Glu Asp Thr
180 185 190

Leu Asp Leu Glu Glu Asp Pro Tyr Phe Thr Asp Ser Phe Leu Asp Ser
195 200 205

Gly Phe Gln Thr Pro Ala Lys Pro Arg Leu Ala Pro Ala Thr Ser Tyr
210 215 220

Asp Gly Lys Thr Ala Val Thr Glu Ile Val Asn Ser Phe Leu Cys Leu
225 230 235 240

Val Pro Glu Glu Ala Lys Thr Ser Ala Phe Leu Glu Glu Thr Gly Tyr
245 250 255

Asp Thr Tyr Val His Asp Ala Tyr Gly Leu Phe Gln Glu Cys Ser Ser
260 265 270

Arg Val Ala Ser Trp Gly Trp Pro Leu Thr Pro Thr Pro Leu Asp Pro
275 280 285

His Glu Pro Glu Arg Pro Phe Phe Glu Gly His Phe Leu Arg Val Leu
290 295 300

Phe Asp Arg Met Ser Arg Ile Leu Asp Gln Pro Tyr Ser Leu Asn Leu
305 310 315 320

Gln Val Thr Ser Val Leu Ser Arg Leu Ala Leu Phe Pro His Pro His
325 330 335

Ile His Glu Tyr Leu Leu Asp Pro Tyr Ile Ser Leu Ala Pro Gly Cys
340 345 350

Arg Ser Leu Phe Ser Val Leu Val Arg Val Ile Gly Asp Leu Met Gln
355 360 365

Arg Ile Gln Arg Val Pro Gln Phe Pro Gly Lys Leu Leu Leu Val Arg
156/201

370

375

380

Lys Gln Leu Thr Gly Gln Ala Pro Gly Glu Gln Leu Asp His Gln Thr
 385 390 395 400

Leu Leu Gln Gly Val Val Val Leu Glu Glu Phe Cys Lys Glu Leu Ala
 405 410 415

Ala Ile Ala Phe Val Lys Phe Pro Pro His Asp Pro Arg Gln Asn Val
 420 425 430

Ser Pro Ala Pro Glu Gly Gln Val
 435 440

<210> 53

<211> 1175

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (68).. (895)

<223>

<400> 53

cccgggtcgcc gcggctgccg cgccgccgct gcaggatagc tagcggccag gagaaataca 60

gtggaaa atg caa aac aac gaa att ata aag cct gcc aaa tac ttc tca 109
 Met Gln Asn Asn Glu Ile Ile Lys Pro Ala Lys Tyr Phe Ser
 1 5 10

gaa ttg gaa aag agc atc ctg ctg gct tta gta gaa aag tat aaa tat 157
 Glu Leu Glu Lys Ser Ile Leu Leu Ala Leu Val Glu Lys Tyr Lys Tyr
 15 20 25 30

gtg ctg gaa tgt aag aaa agt gat gcg cga act att gcc ctt aag cag 205
 Val Leu Glu Cys Lys Lys Ser Asp Ala Arg Thr Ile Ala Leu Lys Gln
 35 40 45

cgt acc tgg cag gcg ctg gcc cac gaa tac aac tct cag ccc agc gtg 253
 Arg Thr Trp Gln Ala Leu Ala His Glu Tyr Asn Ser Gln Pro Ser Val
 50 55 60

tcc ctg cgg gat ttc aaa cag ctg aag aag tgc tgg gag aac atc aag 301
 Ser Leu Arg Asp Phe Lys Gln Leu Lys Lys Cys Trp Glu Asn Ile Lys
 157/201

| 65 | 70 | 75 | |
|---|-----|-----|-----|
| gct cgg acc aaa aaa att atg gcc cat gaa agg aga gag aaa gtg aaa | | | 349 |
| Ala Arg Thr Lys Lys Ile Met Ala His Glu Arg Arg Glu Lys Val Lys | | | |
| 80 | 85 | 90 | |
| cgg agc gtc agc cct ctc ctg agt acc cac gtc cta ggg aag gag aag | | | 397 |
| Arg Ser Val Ser Pro Leu Leu Ser Thr His Val Leu Gly Lys Glu Lys | | | |
| 95 | 100 | 105 | 110 |
| atc gcc agc atg ctg ccg gag cag ctc tac ttc ctg cag agc ccc ccg | | | 445 |
| Ile Ala Ser Met Leu Pro Glu Gln Leu Tyr Phe Leu Gln Ser Pro Pro | | | |
| 115 | 120 | 125 | |
| gag gag gag ccc gaa tac cac ccc gac gcc tca gcc caa gaa tca ttt | | | 493 |
| Glu Glu Glu Pro Glu Tyr His Pro Asp Ala Ser Ala Gln Glu Ser Phe | | | |
| 130 | 135 | 140 | |
| gct gtt tca aat aga gaa ctg tgc gat gat gag aaa gag ttc ata cat | | | 541 |
| Ala Val Ser Asn Arg Glu Leu Cys Asp Asp Glu Lys Glu Phe Ile His | | | |
| 145 | 150 | 155 | |
| ttt cca gta tgt gag ggg acc tct caa cct gaa ccc tcg tgt tca gct | | | 589 |
| Phe Pro Val Cys Glu Gly Thr Ser Gln Pro Glu Pro Ser Cys Ser Ala | | | |
| 160 | 165 | 170 | |
| gtc aga ata aca gcc aat aaa aac tac agg agc aaa acc tct cag gaa | | | 637 |
| Val Arg Ile Thr Ala Asn Lys Asn Tyr Arg Ser Lys Thr Ser Gln Glu | | | |
| 175 | 180 | 185 | 190 |
| ggt gct tta aaa aag atg cat gag gaa gaa cac cat caa caa atg tcc | | | 685 |
| Gly Ala Leu Lys Lys Met His Glu Glu Glu His His Gln Gln Met Ser | | | |
| 195 | 200 | 205 | |
| atc tta caa ctg caa ctg ata caa atg aat gag gtg cat gtg gcc aaa | | | 733 |
| Ile Leu Gln Leu Gln Leu Ile Gln Met Asn Glu Val His Val Ala Lys | | | |
| 210 | 215 | 220 | |
| atc cag cag ata gag cga gag tgt gag atg gca gag gag gaa cac agg | | | 781 |
| Ile Gln Gln Ile Glu Arg Glu Cys Glu Met Ala Glu Glu Glu His Arg | | | |
| 225 | 230 | 235 | |
| ata aaa atg gaa gtt ctc aat aaa aag aag atg tat tgg gaa aga aaa | | | 829 |
| Ile Lys Met Glu Val Leu Asn Lys Lys Lys Met Tyr Trp Glu Arg Lys | | | |
| 240 | 245 | 250 | |
| cta caa act ttt acc aag gaa tgg cct gtt tcc tca ttt aac cgg ccc | | | 877 |
| Leu Gln Thr Phe Thr Lys Glu Trp Pro Val Ser Ser Phe Asn Arg Pro | | | |
| 255 | 260 | 265 | 270 |

ttt ccc aat tcg ccc taa gactttgggg gtggctctct tgtaattaat 925
Phe Pro Asn Ser Pro
275

ctgtgttggc aaagaatgtc tggaacatgg acttggcggc cagtaacctg taacagagct 985
acaactagga aaattagagt ggtagtagtc acttatttaa gaattcattc aggtaaacag 1045
ctgcaccctc tgtacccctt aagtggcaaa gaagctgtta tagtcttctg aaaattatca 1105
ctatgagtgc tataattctg aatataatgt ctcttaatta gaattcatac aagaaaaaaaa 1165
aaaaaaaaaa 1175

<210> 54
<211> 275
<212> PRT
<213> Homo sapiens

<400> 54

Met Gln Asn Asn Glu Ile Ile Lys Pro Ala Lys Tyr Phe Ser Glu Leu
1 5 10 15

Glu Lys Ser Ile Leu Leu Ala Leu Val Glu Lys Tyr Lys Tyr Val Leu
20 25 30

Glu Cys Lys Lys Ser Asp Ala Arg Thr Ile Ala Leu Lys Gln Arg Thr
35 40 45

Trp Gln Ala Leu Ala His Glu Tyr Asn Ser Gln Pro Ser Val Ser Leu
50 55 60

Arg Asp Phe Lys Gln Leu Lys Lys Cys Trp Glu Asn Ile Lys Ala Arg
65 70 75 80

Thr Lys Lys Ile Met Ala His Glu Arg Arg Glu Lys Val Lys Arg Ser
85 90 95

Val Ser Pro Leu Leu Ser Thr His Val Leu Gly Lys Glu Lys Ile Ala
100 105 110

Ser Met Leu Pro Glu Gln Leu Tyr Phe Leu Gln Ser Pro Pro Glu Glu
115 120 125

Glu Pro Glu Tyr His Pro Asp Ala Ser Ala Gln Glu Ser Phe Ala Val
130 135 140

Ser Asn Arg Glu Leu Cys Asp Asp Glu Lys Glu Phe Ile His Phe Pro
145 150 155 160

Val Cys Glu Gly Thr Ser Gln Pro Glu Pro Ser Cys Ser Ala Val Arg
165 170 175

Ile Thr Ala Asn Lys Asn Tyr Arg Ser Lys Thr Ser Gln Glu Gly Ala
180 185 190

Leu Lys Lys Met His Glu Glu Glu His His Gln Gln Met Ser Ile Leu
195 200 205

Gln Leu Gln Leu Ile Gln Met Asn Glu Val His Val Ala Lys Ile Gln
210 215 220

Gln Ile Glu Arg Glu Cys Glu Met Ala Glu Glu Glu His Arg Ile Lys
225 230 235 240

Met Glu Val Leu Asn Lys Lys Lys Met Tyr Trp Glu Arg Lys Leu Gln
245 250 255

Thr Phe Thr Lys Glu Trp Pro Val Ser Ser Phe Asn Arg Pro Phe Pro
260 265 270

Asn Ser Pro
275

<210> 55
<211> 1988
<212> DNA
<213> Homo sapiens

<220>

<221> CDS
 <222> (12)..(1805)
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<400> 55
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 Met Ala Ala Val Gln Ala Ala Glu Val Lys Val Asp Gly
 1 5 10

agc gag ccg aaa ctg agc aag aat gag ctg aag aga cgc ctg aaa gct 98
 Ser Glu Pro Lys Leu Ser Lys Asn Glu Leu Lys Arg Arg Leu Lys Ala
 15 20 25

gag aag aaa gta gca gag aag gag gcc aaa cag aag gag ctc agt gag 146
 Glu Lys Lys Val Ala Glu Lys Glu Ala Lys Gln Lys Glu Leu Ser Glu
 30 35 40 45

aaa cag cta agc caa gcc act gct gct gcc acc aac cac acc act gat 194
 Lys Gln Leu Ser Gln Ala Thr Ala Ala Thr Asn His Thr Thr Asp
 50 55 60

aat ggt gtg ggt cct gag gaa gag agc gtg gac cca aat caa tac tac 242
 Asn Gly Val Gly Pro Glu Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr
 65 70 75

aaa atc cgc agt caa gca att cat cag ctg aag gtc aat ggg gaa gac 290
 Lys Ile Arg Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp
 80 85 90

cca tac cca cac aag ttc cat gta gac atc tca ctc act gac ttc atc 338
 Pro Tyr Pro His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile
 95 100 105

caa aaa tat agt cac ctg cag cct ggg gat cac ctg act gac atc acc 386
 Gln Lys Tyr Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr
 110 115 120 125

tta aag gtg gca ggt agg atc cat gcc aaa aga gct tct ggg gga aag 434
 Leu Lys Val Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys
 130 135 140

ctc atc ttc tat gat ctt cga gga gag ggg gtg aag ttg caa gtc atg 482
 Leu Ile Phe Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met
 145 150 155

gcc aat tcc aga aat tat aaa tca gaa gaa gaa ttt att cat att aat 530
 Ala Asn Ser Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile Asn
 160 165 170

aac aaa ctg cgt cgg gga gac ata att gga gtt cag ggg aat cct ggt 578
 161/201

| | |
|---|------|
| Asn Lys Leu Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly | |
| 175 180 185 | |
| aaa acc aag aag ggt gag ctg agc atc att ccg tat gag atc aca ctg | 626 |
| Lys Thr Lys Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu | |
| 190 195 200 205 | |
| ctg tct ccc tgt ttg cat atg tta cct cat ctt cac ttt ggc ctc aaa | 674 |
| Leu Ser Pro Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys | |
| 210 215 220 | |
| gac aag gaa aca agg tat cgc cag aga tac ttg gac ttg atc ctg aat | 722 |
| Asp Lys Glu Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu Asn | |
| 225 230 235 | |
| gac ttt gtg agg cag aaa ttt atc atc cgc tct aag atc atc aca tat | 770 |
| Asp Phe Val Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr | |
| 240 245 250 | |
| ata aga agt ttc tta gat gag ctg gga ttc cta gag att gaa act ccc | 818 |
| Ile Arg Ser Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro | |
| 255 260 265 | |
| atg atg aac atc atc cca ggg gga gcc gtg gcc aag cct ttc atc act | 866 |
| Met Met Asn Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr | |
| 270 275 280 285 | |
| tat cac aac gag ctg gac atg aac tta tat atg aga att gct cca gaa | 914 |
| Tyr His Asn Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu | |
| 290 295 300 | |
| ctc tat cat aag atg ctt gtg gtt ggt ggc atc gac cgg gtt tat gaa | 962 |
| Leu Tyr His Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu | |
| 305 310 315 | |
| att gga cgc cag ttc cgg aat gag ggg att gat ttg acg cac aat cct | 1010 |
| Ile Gly Arg Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn Pro | |
| 320 325 330 | |
| gag ttc acc acc tgt gag ttc tac atg gcc tat gca gac tat cac gat | 1058 |
| Glu Phe Thr Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His Asp | |
| 335 340 345 | |
| ctc atg gaa atc acg gag aag atg gtt tca ggg atg gtg aag cat att | 1106 |
| Leu Met Glu Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile | |
| 350 355 360 365 | |
| aca ggc agt tac aag gtc acc tac cac cca gat ggc cca gag ggc caa | 1154 |
| Thr Gly Ser Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln | |
| 370 375 380 | |

| | |
|---|------|
| gcc tac gat gtt gac ttc acc cca ccc ttc cgg cga atc aac atg gta Ala Tyr Asp Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met Val 385 390 395 | 1202 |
| gaa gag ctt gag aaa gcc ctg ggg atg aag ctg cca gaa acg aac ctc Glu Glu Leu Glu Lys Ala Leu Gly Met Lys Leu Pro Glu Thr Asn Leu 400 405 410 | 1250 |
| ttt gaa act gaa gaa act cgc aaa att ctt gat gat atc tgt gtg gca Phe Glu Thr Glu Glu Thr Arg Lys Ile Leu Asp Asp Ile Cys Val Ala 415 420 425 | 1298 |
| aaa gct gtt gaa tgc cct cca cct cgg acc aca gcc agg ctc ctt gac Lys Ala Val Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu Asp 430 435 440 445 | 1346 |
| aag ctt gtt ggg gag ttc ctg gaa gtg act tgc atc aat cct aca ttc Lys Leu Val Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe 450 455 460 | 1394 |
| atc tgt gat cac cca cag ata atg agc cct ttg gct aaa tgg cac cgc Ile Cys Asp His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His Arg 465 470 475 | 1442 |
| tct aaa gag ggt ctg act gag cgc ttt gag ctg ttt gtc atg aag aaa Ser Lys Glu Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys Lys 480 485 490 | 1490 |
| gag ata tgc aat gcg tat act gag ctg aat gat ccc atg cgg cag cgg Glu Ile Cys Asn Ala Tyr Thr Glu Leu Asn Asp Pro Met Arg Gln Arg 495 500 505 | 1538 |
| cag ctt ttt gaa gaa cag gcc aag gcc aag gct gca ggt gat gat gag Gln Leu Phe Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu 510 515 520 525 | 1586 |
| gcc atg ttc ata gat gaa aac ttc tgt act gcc ctg gaa tat ggg ctg Ala Met Phe Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly Leu 530 535 540 | 1634 |
| ccc ccc aca gct ggc tgg ggc atg ggc att gat cga gtc gcc atg ttt Pro Pro Thr Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe 545 550 555 | 1682 |
| ctc acg gac tcc aac aac atc aag gaa gta ctt ctg ttt cct gcc atg Leu Thr Asp Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met 560 565 570 | 1730 |
| aaa ccc gaa gac aag aag gag aat gta gca acc act gat aca ctg gaa 163/201 | 1778 |

Lys Pro Glu Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu Glu
 575 580 585

agc aca aca gtt ggc act tct gtc tag aaaataataa ttgcaagttg 1825
 Ser Thr Thr Val Gly Thr Ser Val
 590 595

tataactcag gcgtctttgc atttctgcga aagatcaagg tctgcaaggg aattcttgtg 1885

tgctgctttc catttgacac cgcagttctg ttcagccatc agaagagaga caaggaatta 1945

aaaattttctt tttaatcctg ttaccaaaaa aaaaaaaaaa aaa 1988

<210> 56

<211> 597

<212> PRT

<213> Homo sapiens

<400> 56

Met Ala Ala Val Gln Ala Ala Glu Val Lys Val Asp Gly Ser Glu Pro
 1 5 10 15

Lys Leu Ser Lys Asn Glu Leu Lys Arg Arg Leu Lys Ala Glu Lys Lys
 20 25 30

Val Ala Glu Lys Glu Ala Lys Gln Lys Glu Leu Ser Glu Lys Gln Leu
 35 40 45

Ser Gln Ala Thr Ala Ala Ala Thr Asn His Thr Thr Asp Asn Gly Val
 50 55 60

Gly Pro Glu Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr Lys Ile Arg
 65 70 75 80

Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp Pro Tyr Pro
 85 90 95

His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile Gln Lys Tyr
 100 105 110

Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr Leu Lys Val
 164/201

115

120

125

Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys Leu Ile Phe
 130 135 140

Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met Ala Asn Ser
 145 150 155 160

Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile Asn Asn Lys Leu
 165 170 175

Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly Lys Thr Lys
 180 185 190

Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu Leu Ser Pro
 195 200 205

Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys Asp Lys Glu
 210 215 220

Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu Asn Asp Phe Val
 225 230 235 240

Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr Ile Arg Ser
 245 250 255

Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro Met Met Asn
 260 265 270

Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr Tyr His Asn
 275 280 285

Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu Leu Tyr His
 290 295 300

Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu Ile Gly Arg
 305 310 315 320

Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn Pro Glu Phe Thr
325 330 335

Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His Asp Leu Met Glu
340 345 350

Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile Thr Gly Ser
355 360 365

Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln Ala Tyr Asp
370 375 380

Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met Val Glu Glu Leu
385 390 395 400

Glu Lys Ala Leu Gly Met Lys Leu Pro Glu Thr Asn Leu Phe Glu Thr
405 410 415

Glu Glu Thr Arg Lys Ile Leu Asp Asp Ile Cys Val Ala Lys Ala Val
420 425 430

Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu Asp Lys Leu Val
435 440 445

Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe Ile Cys Asp
450 455 460

His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His Arg Ser Lys Glu
465 470 475 480

Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys Lys Glu Ile Cys
485 490 495

Asn Ala Tyr Thr Glu Leu Asn Asp Pro Met Arg Gln Arg Gln Leu Phe
500 505 510

Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu Ala Met Phe
166/201

515

520

525

Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly Leu Pro Pro Thr
 530 535 540

Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe Leu Thr Asp
 545 550 555 560

Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met Lys Pro Glu
 565 570 575

Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu Glu Ser Thr Thr
 580 585 590

Val Gly Thr Ser Val
 595

<210> 57
 <211> 763
 <212> DNA
 <213> Homo sapiens

<400> 57
 ggggctaaac ctagccccc aa acccactcca ccttactacc agacaacctt agccaaacca 60
 tttacccaaa taaagtatag gcgatagaaa ttgaaacctg gcgcaataga tatagtaccg 120
 caagggaag atgaaaaatt ataaccaagc ataatatagc aaggactaac ccctatacct 180
 tctgcataat gaattaacta gaaataactt tgcaaggaga gccaaagcta agacccccga 240
 aaccagacga gctacctaag aacagctaaa agagcacacc cgtctatgta gcaaaatagt 300
 gggaagattt ataggtagag gcgacaaaacc taccgagcct ggtgatagct ggttgtccaa 360
 gatagaatct tagttcaact ttaaatttgc ccacagaacc ctctaaatcc ccttgtaaatt 420
 ttaactgtta gtccaaagag gaacagctct ttggacacta ggaaaaaacc ttgtagagag 480
 agtaaaaaat ttaacacca tagtaggcct aaaagcagcc accaattaag aaagcgttca 540
 agctcaacac ccactaccta aaaaatccca aacatataac tgaactcctc acaccaatt 600
 ggaccaatct atcacctat agaagaacta atgttagtat aagtaacatg aaaacattct 660
 167/201

cctccgcata agcctgcgtc agattaaaac actgaactga caattaacag cccaatatct 720
acaatcaacc cacaagtcac tattaccctc actgtcaacc caa 763

<210> 58
<211> 1575
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (196).. (834)
<223>

<400> 58
ctcttcccgagg ctccagctcc gccgccagct ccagcctttg ctccccctcc caaagtcccc 60
tccccggagc ggagcgcacc taggggtccct ctccggtccc ccagccccag ctacccggtc 120
agaccagcag cctcggggggg ccccccccg ccagcctgcc tccctccgc tcagccctgc 180
cagggttccc cagcc atg aat ctc ttc cga ttc ctg gga gac ctc tcc cac 231
Met Asn Leu Phe Arg Phe Leu Gly Asp Leu Ser His
1 5 10
ctc ctc gcc atc atc ttg cta ctg ctc aaa atc tgg aag tcc cgc tcg 279
Leu Leu Ala Ile Ile Leu Leu Leu Leu Lys Ile Trp Lys Ser Arg Ser
15 20 25
tgc gcc gga att tca ggg aag agc cag gtc ctg ttt gct gtg gtg ttc 327
Cys Ala Gly Ile Ser Gly Lys Ser Gln Val Leu Phe Ala Val Val Phe
30 35 40
act gcc cga tat ctg gac ctc ttc acc aac tac atc tca ctc tac aac 375
Thr Ala Arg Tyr Leu Asp Leu Phe Thr Asn Tyr Ile Ser Leu Tyr Asn
45 50 55 60
acg tgt atg aag gtg gtc tac ata gcc tgc tcc ttc acc acg gtc tgg 423
Thr Cys Met Lys Val Val Tyr Ile Ala Cys Ser Phe Thr Thr Val Trp
65 70 75
ttg att tat agc aag ttc aaa gct act tac gat ggg aac cat gac acg 471
Leu Ile Tyr Ser Lys Phe Lys Ala Thr Tyr Asp Gly Asn His Asp Thr
80 85 90
ttc aga gtg gag ttc ctg gtc gtt ccc aca gcc att ctg gcg ttc ctg 519
Phe Arg Val Glu Phe Leu Val Val Pro Thr Ala Ile Leu Ala Phe Leu
95 100 105

| | |
|---|------|
| gtc aat cat gac ttc acc cct ctg gag atc ctc tgg acc ttc tcc atc Val Asn His Asp Phe Thr Pro Leu Glu Ile Leu Trp Thr Phe Ser Ile 110 115 120 | 567 |
| tac ctg gag tca gtg gcc atc ttg ccg cag ctg ttc atg gtg agc aag Tyr Leu Glu Ser Val Ala Ile Leu Pro Gln Leu Phe Met Val Ser Lys 125 130 135 140 | 615 |
| acc ggc gag gcg gag acc atc acc agc cac tac ttg ttt gcg cta ggc Thr Gly Glu Ala Glu Thr Ile Thr Ser His Tyr Leu Phe Ala Leu Gly 145 150 155 | 663 |
| gtt tac cgc acg ctc tat ctc ttc aac tgg atc tgg cgc tac cat ttc Val Tyr Arg Thr Leu Tyr Leu Phe Asn Trp Ile Trp Arg Tyr His Phe 160 165 170 | 711 |
| gag ggc ttc ttc gac ctc atc gcc att gtg gca ggc ctg gtc cag aca Glu Gly Phe Phe Asp Leu Ile Ala Ile Val Ala Gly Leu Val Gln Thr 175 180 185 | 759 |
| gtc ctc tac tgc gat ttc ttc tac ctc tat atc acc aaa gtc cta aag Val Leu Tyr Cys Asp Phe Phe Tyr Leu Tyr Ile Thr Lys Val Leu Lys 190 195 200 | 807 |
| ggg aag aag ttg agt ttg ccg gca tag ccccggtcct ctccatctct Gly Lys Lys Leu Ser Leu Pro Ala 205 210 | 854 |
| ctcctcggca gcagcgggag gcagaggaag gcggcagaag atgaagagct ttcccatcca | 914 |
| gggggtgactt ttttaagaac ccacctcttg tgctcccat cccgcctcct gccgggtttc | 974 |
| agggggacag tggaggatcc aggtcttggg gagctcagga ctggggctgt ttgtagtttt | 1034 |
| ttgcctttta gacaagaaaa aaaaatcttt ccactcttta gtttttgatt ctgatgactc | 1094 |
| gtttttcttc tactctgtgg cccaatttt tataaagtgt ttttgagtgt cctatgggcc | 1154 |
| ggggcagggt ccaagatctt ttcccttccc caggccccctc ggctccctcc cagatccac | 1214 |
| ccccagcccc actggttgcc aaacactaaa tctgccgaca cccatctgcc ccacctcctg | 1274 |
| ccatggccat gaaccgcgac cccactaaa tttctagatt ggggataggg agaaaggag | 1334 |
| gcccaggaag gtctccctg attttttttc atagtaattt ttttcccag agtttgaatt | 1394 |
| ttttggtctt ctcctggttt tttggcaaat taggggggcc cggggctcaa gtgcgggaag | 1454 |
| ggggctggcc cgaggatccc atggctctca cccatgttt ttgtacagaa ctgatggttg | 1514 |

aatctttgtt ctcttgaaat aaacagaaga aaatgaaacc tttaaaaaaa aaaaaaaaaa 1574

a 1575

<210> 59

<211> 212

<212> PRT

<213> Homo sapiens

<400> 59

Met Asn Leu Phe Arg Phe Leu Gly Asp Leu Ser His Leu Leu Ala Ile
1 5 10 15

Ile Leu Leu Leu Leu Lys Ile Trp Lys Ser Arg Ser Cys Ala Gly Ile
20 25 30

Ser Gly Lys Ser Gln Val Leu Phe Ala Val Val Phe Thr Ala Arg Tyr
35 40 45

Leu Asp Leu Phe Thr Asn Tyr Ile Ser Leu Tyr Asn Thr Cys Met Lys
50 55 60

Val Val Tyr Ile Ala Cys Ser Phe Thr Thr Val Trp Leu Ile Tyr Ser
65 70 75 80

Lys Phe Lys Ala Thr Tyr Asp Gly Asn His Asp Thr Phe Arg Val Glu
85 90 95

Phe Leu Val Val Pro Thr Ala Ile Leu Ala Phe Leu Val Asn His Asp
100 105 110

Phe Thr Pro Leu Glu Ile Leu Trp Thr Phe Ser Ile Tyr Leu Glu Ser
115 120 125

Val Ala Ile Leu Pro Gln Leu Phe Met Val Ser Lys Thr Gly Glu Ala
130 135 140

Glu Thr Ile Thr Ser His Tyr Leu Phe Ala Leu Gly Val Tyr Arg Thr
170/201

| | | | |
|---|-----|-----|-----|
| 145 | 150 | 155 | 160 |
| Leu Tyr Leu Phe Asn Trp Ile Trp Arg Tyr His Phe Glu Gly Phe Phe | | | |
| | 165 | 170 | 175 |
| Asp Leu Ile Ala Ile Val Ala Gly Leu Val Gln Thr Val Leu Tyr Cys | | | |
| | 180 | 185 | 190 |
| Asp Phe Phe Tyr Leu Tyr Ile Thr Lys Val Leu Lys Gly Lys Lys Leu | | | |
| | 195 | 200 | 205 |
| Ser Leu Pro Ala | | | |
| 210 | | | |

<210> 60
 <211> 2245
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (157)..(1110)
 <223>

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| <400> 60 | |
| gaatctcgac ccttgaatgg agttacacga acggccagat gaaagaagga aggcccggac | 60 |
| ctccactcag ggccgactag gggactggcg gaggggtgcac gctgatggat ttactcaccg | 120 |
| ggtgcttggg gctccagcag ctggctggag cccgcg atg acg tca cgg act cgg | 174 |
| Met Thr Ser Arg Thr Arg | |
| 1 5 | |
| gtc aca tgg ccg agt ccg ccc cgc ccc ctc ccc gtc ccc gcc gct gca | 222 |
| Val Thr Trp Pro Ser Pro Pro Arg Pro Leu Pro Val Pro Ala Ala Ala | |
| 10 15 20 | |
| gcc gtc gcc ttc gga gcg aag ggt acc gac ccg gca gaa gct cgg agc | 270 |
| Ala Val Ala Phe Gly Ala Lys Gly Thr Asp Pro Ala Glu Ala Arg Ser | |
| 25 30 35 | |
| tct cgg ggt atc gag gag gca ggc ccg cgg gcg cac ggg cga gcg ggc | 318 |
| Ser Arg Gly Ile Glu Glu Ala Gly Pro Arg Ala His Gly Arg Ala Gly | |
| 40 45 50 | |

| | |
|---|-----|
| cgg gag ccg gag cgg cgg agg agc cgg cag cag cgg cgc ggc ggg ctc Arg Glu Pro Glu Arg Arg Arg Ser Arg Gln Gln Arg Arg Gly Gly Leu 55 60 65 70 | 366 |
| cag gcg agg cgg tcg acg ctc ctg aaa act tgc gcg cgc gct cgc gcc Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr Cys Ala Arg Ala Arg Ala 75 80 85 | 414 |
| act gcg ccc gga gcg atg aag atg gtc gcg ccc tgg acg cgg ttc tac Thr Ala Pro Gly Ala Met Lys Met Val Ala Pro Trp Thr Arg Phe Tyr 90 95 100 | 462 |
| tcc aac agc tgc tgc ttg tgc tgc cat gtc cgc acc ggc acc atc ctg Ser Asn Ser Cys Cys Leu Cys Cys His Val Arg Thr Gly Thr Ile Leu 105 110 115 | 510 |
| ctc ggc gtc tgg tat ctg atc atc aat gct gtg gta ctg ttg att tta Leu Gly Val Trp Tyr Leu Ile Ile Asn Ala Val Val Leu Leu Ile Leu 120 125 130 | 558 |
| ttg agt gcc ctg gct gat ccg gat cag tat aac ttt tca agt tct gaa Leu Ser Ala Leu Ala Asp Pro Asp Gln Tyr Asn Phe Ser Ser Ser Glu 135 140 145 150 | 606 |
| ctg gga ggt gac ttt gag ttc atg gat gat gcc aac atg tgc att gcc Leu Gly Gly Asp Phe Glu Phe Met Asp Asp Ala Asn Met Cys Ile Ala 155 160 165 | 654 |
| att gcg att tct ctt ctc atg atc ctg ata tgt gct atg gct act tac Ile Ala Ile Ser Leu Leu Met Ile Leu Ile Cys Ala Met Ala Thr Tyr 170 175 180 | 702 |
| gga gcg tac aag caa cgc gca gcc tgg atc atc cca ttc ttc tgt tac Gly Ala Tyr Lys Gln Arg Ala Ala Trp Ile Ile Pro Phe Phe Cys Tyr 185 190 195 | 750 |
| cag atc ttt gac ttt gcc ctg aac atg ttg gtt gca atc act gtg ctt Gln Ile Phe Asp Phe Ala Leu Asn Met Leu Val Ala Ile Thr Val Leu 200 205 210 | 798 |
| att tat cca aac tcc att cag gaa tac ata cgg caa ctg cct cct aat Ile Tyr Pro Asn Ser Ile Gln Glu Tyr Ile Arg Gln Leu Pro Pro Asn 215 220 225 230 | 846 |
| ttt ccc tac aga gat gat gtc atg tca gtg aat cct acc tgt ttg gtc Phe Pro Tyr Arg Asp Asp Val Met Ser Val Asn Pro Thr Cys Leu Val 235 240 245 | 894 |
| ctt att att ctt ctg ttt att agc att atc ttg act ttt aag ggt tac Leu Ile Ile Leu Leu Phe Ile Ser Ile Ile Leu Thr Phe Lys Gly Tyr 172/201 | 942 |

| 250 | 255 | 260 | |
|---|-----|-----|------|
| ttg att agc tgt gtt tgg aac tgc tac cga tac atc aat ggt agg aac | | | 990. |
| Leu Ile Ser Cys Val Trp Asn Cys Tyr Arg Tyr Ile Asn Gly Arg Asn | | | |
| 265 | 270 | 275 | |
| tcc tct gat gtc ctg gtt tat gtt acc agc aat gac act acg gtg ctg | | | 1038 |
| Ser Ser Asp Val Leu Val Tyr Val Thr Ser Asn Asp Thr Thr Val Leu | | | |
| 280 | 285 | 290 | |
| cta ccc ccg tat gat gat gcc act gtg aat ggt gct gcc aag gag cca | | | 1086 |
| Leu Pro Pro Tyr Asp Asp Ala Thr Val Asn Gly Ala Ala Lys Glu Pro | | | |
| 295 | 300 | 305 | 310 |
| ccg cca cct tac gtg tct gcc taa gccttcaagt gggcggagct gagggcagca | | | 1140 |
| Pro Pro Pro Tyr Val Ser Ala | | | |
| 315 | | | |
| gcttgacttt gcagacatct gagcaatagt tctgttattt cacttttgcc atgagcctct | | | 1200 |
| ctgagcttgt ttgttgctga aatgctactt tttaaaattt agatgttaga ttgaaaactg | | | 1260 |
| tagttttcaa catatgcttt gctggaacac tgtgatagat taactgtaga attcttcctg | | | 1320 |
| tacgattggg gatataatgg gcttactaa ccttccttag gcattgaaac ttcccccaaa | | | 1380 |
| tctgatggac ctagaagtct gcttttgtac ctgctgggcc ccaaagttgg gcatttttct | | | 1440 |
| ctctgttccc tctcttttga aaatgtaaaa taaaaccaa aatagacaac tttttcttca | | | 1500 |
| gccattccag catagagaac aaaaccttat ggaaacagga atgtcaattg tgtaatcatt | | | 1560 |
| gttctaatta ggtaaataga agtccttatg tatgtgttac aagaatttcc cccacaacat | | | 1620 |
| cctttatgac tgaagttcaa tgacagtttg tgtttggtgg taaaggattt tctccatggc | | | 1680 |
| ctgaattaag accattagaa agcaccaggc cgtgggagca gtgaccatct gctgactgtt | | | 1740 |
| cttgtggatc ttgtgtccag ggacatgggg tgacatgcct cgtatgtgtt agagggtgga | | | 1800 |
| atggatgtgt ttggcgtgc atgggatctg gtgccccctt tctcctggat tcacatcccc | | | 1860 |
| accagggcc cgcttttact aagtgttctg ccctagattg gttcaaggag gtcaccaac | | | 1920 |
| tgactttatc gagtggaatt gggatatatt tgatatactt ctgcctaaca acatggaaaa | | | 1980 |
| gggttttctt ttccctgcaa gctacatcct actgcttga acttccaagt atgtctagtc | | | 2040 |
| accttttaaa atgtaaacad ttccagaaaa atgaggattg ccttccttgt atgcgctttt | | | 2100 |

taccttgact acctgaattg caagggattt ttatatattc atatgttaca aagtcagcaa 2160
ctctcctggtt gggttcattat tgaatgtgct gtaaattaag ttgtttgcaa ttaaaacaag 2220
gtttgccac aaaaaaaaaa aaaaa 2245

<210> 61
<211> 317
<212> PRT
<213> Homo sapiens

<400> 61

Met Thr Ser Arg Thr Arg Val Thr Trp Pro Ser Pro Pro Arg Pro Leu
1 5 10 15

Pro Val Pro Ala Ala Ala Val Ala Phe Gly Ala Lys Gly Thr Asp
20 25 30

Pro Ala Glu Ala Arg Ser Ser Arg Gly Ile Glu Glu Ala Gly Pro Arg
35 40 45

Ala His Gly Arg Ala Gly Arg Glu Pro Glu Arg Arg Arg Ser Arg Gln
50 55 60

Gln Arg Arg Gly Gly Leu Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr
65 70 75 80

Cys Ala Arg Ala Arg Ala Thr Ala Pro Gly Ala Met Lys Met Val Ala
85 90 95

Pro Trp Thr Arg Phe Tyr Ser Asn Ser Cys Cys Leu Cys Cys His Val
100 105 110

Arg Thr Gly Thr Ile Leu Leu Gly Val Trp Tyr Leu Ile Ile Asn Ala
115 120 125

Val Val Leu Leu Ile Leu Leu Ser Ala Leu Ala Asp Pro Asp Gln Tyr
130 135 140

Asn Phe Ser Ser Ser Glu Leu Gly Gly Asp Phe Glu Phe Met Asp Asp
145 150 155 160

Ala Asn Met Cys Ile Ala Ile Ala Ile Ser Leu Leu Met Ile Leu Ile
165 170 175

Cys Ala Met Ala Thr Tyr Gly Ala Tyr Lys Gln Arg Ala Ala Trp Ile
180 185 190

Ile Pro Phe Phe Cys Tyr Gln Ile Phe Asp Phe Ala Leu Asn Met Leu
195 200 205

Val Ala Ile Thr Val Leu Ile Tyr Pro Asn Ser Ile Gln Glu Tyr Ile
210 215 220

Arg Gln Leu Pro Pro Asn Phe Pro Tyr Arg Asp Asp Val Met Ser Val
225 230 235 240

Asn Pro Thr Cys Leu Val Leu Ile Ile Leu Leu Phe Ile Ser Ile Ile
245 250 255

Leu Thr Phe Lys Gly Tyr Leu Ile Ser Cys Val Trp Asn Cys Tyr Arg
260 265 270

Tyr Ile Asn Gly Arg Asn Ser Ser Asp Val Leu Val Tyr Val Thr Ser
275 280 285

Asn Asp Thr Thr Val Leu Leu Pro Pro Tyr Asp Asp Ala Thr Val Asn
290 295 300

Gly Ala Ala Lys Glu Pro Pro Pro Pro Tyr Val Ser Ala
305 310 315

<210> 62

<211> 1453

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (65)..(1057)

<223>

<400> 62

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cgcc atg tcc gac agc gag aag ctc aac ctg gac tcg atc atc ggg cgc      109
  Met Ser Asp Ser Glu Lys Leu Asn Leu Asp Ser Ile Ile Gly Arg
    1             5             10             15

ctg ctg gaa gtg cag ggc tcg cgg cct ggc aag aat gta cag ctg aca      157
Leu Leu Glu Val Gln Gly Ser Arg Pro Gly Lys Asn Val Gln Leu Thr
    20             25             30

gag aac gag atc cgc ggt ctg tgc ctg aaa tcc cgg gag att ttt ctg      205
Glu Asn Glu Ile Arg Gly Leu Cys Leu Lys Ser Arg Glu Ile Phe Leu
    35             40             45

agc cag ccc att ctt ctg gag ctg gag gca ccc ctc aag atc tgc ggt      253
Ser Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly
    50             55             60

gac ata cac ggc cag tac tac gac ctt ctg cga cta ttt gag tat ggc      301
Asp Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly
    65             70             75

ggg ttc cct ccc gag agc aac tac ctc ttt ctg ggg gac tat gtg gac      349
Gly Phe Pro Pro Glu Ser Asn Tyr Leu Phe Leu Gly Asp Tyr Val Asp
    80             85             90             95

agg ggc aag cag tcc ttg gag acc atc tgc ctg ctg ctg gcc tat aag      397
Arg Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Leu Ala Tyr Lys
    100            105            110

atc aag tac ccc gag aac ttc ttc ctg ctc cgt ggg aac cac gag tgt      445
Ile Lys Tyr Pro Glu Asn Phe Phe Leu Leu Arg Gly Asn His Glu Cys
    115            120            125

gcc agc atc aac cgc atc tat ggt ttc tac gat gag tgc aag aga cgc      493
Ala Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg
    130            135            140

tac aac atc aaa ctg tgg aaa acc ttc act gac tgc ttc aac tgc ctg      541
Tyr Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu
    145            150            155

ccc atc gcg gcc ata gtg gac gaa aag atc ttc tgc tgc cac gga ggc      589
Pro Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly
    160            165            170            175
```


| | |
|---|------|
| ctg tcc ccg gac ctg cag tct atg gag cag att cgg cgg atc atg cgg Leu Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg 180 185 190 | 637 |
| ccc aca gat gtg cct gac cag ggc ctg ctg tgt gac ctg ctg tgg tct Pro Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser 195 200 205 | 685 |
| gac cct gac aag gac gtg cag ggc tgg ggc gag aac gac cgt ggc gtc Asp Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val 210 215 220 | 733 |
| tct ttt acc ttt gga gcc gag gtg gtg gcc aag ttc ctc cac aag cac Ser Phe Thr Phe Gly Ala Glu Val Val Ala Lys Phe Leu His Lys His 225 230 235 | 781 |
| gac ttg gac ctc atc tgc cga gca cac cag gtg gta gaa gac ggc tac Asp Leu Asp Leu Ile Cys Arg Ala His Gln Val Val Glu Asp Gly Tyr 240 245 250 255 | 829 |
| gag ttc ttt gcc aag cgg cag ctg gtg aca ctt ttc tca gct ccc aac Glu Phe Phe Ala Lys Arg Gln Leu Val Thr Leu Phe Ser Ala Pro Asn 260 265 270 | 877 |
| tac tgt ggc gag ttt gac aat gct ggc gcc atg atg agt gtg gac gag Tyr Cys Gly Glu Phe Asp Asn Ala Gly Ala Met Met Ser Val Asp Glu 275 280 285 | 925 |
| acc ctc atg tgc tct ttc cag atc ctc aag ccc gcc gac aag aac aag Thr Leu Met Cys Ser Phe Gln Ile Leu Lys Pro Ala Asp Lys Asn Lys 290 295 300 | 973 |
| ggg aag tac ggg cag ttc agt ggc ctg aac cct gga ggc cga ccc atc Gly Lys Tyr Gly Gln Phe Ser Gly Leu Asn Pro Gly Gly Arg Pro Ile 305 310 315 | 1021 |
| acc cca ccc cgc aat tcc gcc aaa gcc aag aaa tag cccccgcaca Thr Pro Pro Arg Asn Ser Ala Lys Ala Lys Lys 320 325 330 | 1067 |
| ccaccctgtg ccccatgatga tggattgatt gtacagaaat catgctgccca tgctgggggg | 1127 |
| gggtcacccc gaccctcag gccacctgt cacggggaac atggagcctt ggtgtatttt | 1187 |
| tcttttcttt ttttaatgaa tcaatagcag cgtccagtcc cccagggctg cttcctgcct | 1247 |
| gcacctgcgg tgactgtgag caggatcctg gggccgaggc tgcagctcag ggcaacggca | 1307 |
| ggccaggtcg tgggtctcca gccgtgcttg gcctcagggc tggcagccgg atcctggggc | 1367 |

aaccatctg gtctcttgaa taaaggtcaa agctggattc tcaaaaaaaaa aaaaaaaaaa 1427

aaaaaaaaa aaaaaaaaaa aaaaaa 1453

<210> 63

<211> 330

<212> PRT

<213> Homo sapiens

<400> 63

Met Ser Asp Ser Glu Lys Leu Asn Leu Asp Ser Ile Ile Gly Arg Leu
1 5 10 15

Leu Glu Val Gln Gly Ser Arg Pro Gly Lys Asn Val Gln Leu Thr Glu
20 25 30

Asn Glu Ile Arg Gly Leu Cys Leu Lys Ser Arg Glu Ile Phe Leu Ser
35 40 45

Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly Asp
50 55 60

Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly Gly
65 70 75 80

Phe Pro Pro Glu Ser Asn Tyr Leu Phe Leu Gly Asp Tyr Val Asp Arg
85 90 95

Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Leu Ala Tyr Lys Ile
100 105 110

Lys Tyr Pro Glu Asn Phe Phe Leu Leu Arg Gly Asn His Glu Cys Ala
115 120 125

Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg Tyr
130 135 140

Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu Pro
178/201

| | | | |
|---|-----|-----|-----|
| 145 | 150 | 155 | 160 |
| Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly Leu | 165 | 170 | 175 |
| Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg Pro | 180 | 185 | 190 |
| Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser Asp | 195 | 200 | 205 |
| Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val Ser | 210 | 215 | 220 |
| Phe Thr Phe Gly Ala Glu Val Val Ala Lys Phe Leu His Lys His Asp | 225 | 230 | 235 |
| Leu Asp Leu Ile Cys Arg Ala His Gln Val Val Glu Asp Gly Tyr Glu | 245 | 250 | 255 |
| Phe Phe Ala Lys Arg Gln Leu Val Thr Leu Phe Ser Ala Pro Asn Tyr | 260 | 265 | 270 |
| Cys Gly Glu Phe Asp Asn Ala Gly Ala Met Met Ser Val Asp Glu Thr | 275 | 280 | 285 |
| Leu Met Cys Ser Phe Gln Ile Leu Lys Pro Ala Asp Lys Asn Lys Gly | 290 | 295 | 300 |
| Lys Tyr Gly Gln Phe Ser Gly Leu Asn Pro Gly Gly Arg Pro Ile Thr | 305 | 310 | 315 |
| Pro Pro Arg Asn Ser Ala Lys Ala Lys Lys | 325 | 330 | |

<210> 64
 <211> 1591
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (44)..(814)

<223>

<400> 64

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| ccctgcgtct ctgcccgcgc cgtggcgccc gagtgcactg aag atg gcg gct gct | 55 |
| Met Ala Ala Ala | |
| 1 | |
| | |
| gta gga cgg ttg ctc cga gcg tcg gtt gcc cga cat gtg agt gcc att | 103 |
| Val Gly Arg Leu Leu Arg Ala Ser Val Ala Arg His Val Ser Ala Ile | |
| 5 10 15 20 | |
| | |
| cct tgg ggc att tct gcc act gca gcc ctc agg cct gct gca tgt gga | 151 |
| Pro Trp Gly Ile Ser Ala Thr Ala Ala Leu Arg Pro Ala Ala Cys Gly | |
| 25 30 35 | |
| | |
| aga acg agc ttg aca aat tta ttg tgt tct ggt tcc agt caa gca aaa | 199 |
| Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser Ser Gln Ala Lys | |
| 40 45 50 | |
| | |
| tta ttc agc acc agt tcc tca tgc cat gca cct gct gtc acc cag cat | 247 |
| Leu Phe Ser Thr Ser Ser Ser Cys His Ala Pro Ala Val Thr Gln His | |
| 55 60 65 | |
| | |
| gca ccc tat ttt aag ggt aca gcc gtt gtc aat gga gag ttc aaa gac | 295 |
| Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly Glu Phe Lys Asp | |
| 70 75 80 | |
| | |
| cta agc ctt gat gac ttt aag ggg aaa tat ttg gtg ctt ttc ttc tat | 343 |
| Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val Leu Phe Phe Tyr | |
| 85 90 95 100 | |
| | |
| cct ttg gat ttc acc ttt gtg tgt cct aca gaa att gtt gct ttt agt | 391 |
| Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile Val Ala Phe Ser | |
| 105 110 115 | |
| | |
| gac aaa gct aac gaa ttt cac gac gtg aac tgt gaa gtt gtc gca gtc | 439 |
| Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu Val Val Ala Val | |
| 120 125 130 | |
| | |
| tca gtg gat tcc cac ttt agc cat ctt gcc tgg ata aat aca cca agg | 487 |
| Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile Asn Thr Pro Arg | |
| 135 140 145 | |
| | |
| aag aat ggt ggt ttg ggc cac atg aac atc gca ctc ttg tca gac tta | 535 |
| Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu Leu Ser Asp Leu | |

| 150 | 155 | 160 | |
|--|-----|-----|------|
| act aag cag att tcc cga gac tac ggt gtg ctg tta gaa ggt tct ggt | | | 583 |
| Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu Glu Gly Ser Gly | | | |
| 165 | 170 | 175 | 180 |
| ctt gca cta aga ggt ctc ttc ata att gac ccc aat gga gtc atc aag | | | 631 |
| Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn Gly Val Ile Lys | | | |
| | 185 | 190 | 195 |
| cat ttg agc gtc aac gat ctc cca gtg ggc cga agc gtg gaa gaa acc | | | 679 |
| His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser Val Glu Glu Thr | | | |
| | 200 | 205 | 210 |
| ctc cgc ttg gtg aag gcg ttc cag tat gta gaa aca cat gga gaa gtc | | | 727 |
| Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr His Gly Glu Val | | | |
| | 215 | 220 | 225 |
| tgc cca gcg aac tgg aca ccg gat tct cct acg atc aag cca agt cca | | | 775 |
| Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile Lys Pro Ser Pro | | | |
| | 230 | 235 | 240 |
| gct gct tcc aaa gag tac ttt cag aag gta aat cag tag atcaccatg | | | 824 |
| Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln | | | |
| 245 | 250 | 255 | |
| tgtatctgca ccttctcaac tgagagaaga accacagttg aaacctgctt ttatcatttt | | | 884 |
| caagatgggtt atttgtagaa ggcaaggaac caattatgct tgtattcata agtattactc | | | 944 |
| taaatgtttt gtttttgtaa ttctggctaa gaccttttaa acatgggttag ttgctagtag | | | 1004 |
| aaggaatcct ttattggttaa catcttggtg gctggctagc tagtttctac agaacataat | | | 1064 |
| ttgcctctat agaaggctat tcttagatca tgtctcaatg gaaacactct tctttcttag | | | 1124 |
| ccttacttga atcttgcccta taataaagta gagcaacaca cattgaaagc ttctgatcaa | | | 1184 |
| cggtcctgaa attttcatct tgaatgtctt tgtattaaac tgaattttct tttaagctaa | | | 1244 |
| caaagatcat aattttcaat gattagccgt gtaactcctg caatgaatgt ttatgtgatt | | | 1304 |
| gaagcaaatg tgaatcgat tattttaaaa agtggcagag tgacttaact gatcatgcat | | | 1364 |
| gatccctcat cctgaaatt gagtttatgt agtcatttta cttattttat tcattagcta | | | 1424 |
| actttgtcta tgtatatttc tagatattga ttagtgtaat cgattataaa ggatatttat | | | 1484 |
| caaatccagg gattgcattt tgaaattata attattttct ttgctgaagt attcattgta | | | 1544 |

aaacatacaa aataaacata ttttaaaaca ttgtcathtt accacca

1591

<210> 65
<211> 256
<212> PRT
<213> Homo sapiens

<400> 65

Met Ala Ala Ala Val Gly Arg Leu Leu Arg Ala Ser Val Ala Arg His
1 5 10 15

Val Ser Ala Ile Pro Trp Gly Ile Ser Ala Thr Ala Ala Leu Arg Pro
20 25 30

Ala Ala Cys Gly Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser
35 40 45

Ser Gln Ala Lys Leu Phe Ser Thr Ser Ser Ser Cys His Ala Pro Ala
50 55 60

Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly
65 70 75 80

Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val
85 90 95

Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
100 105 110

Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu
115 120 125

Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile
130 135 140

Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu
145 150 155 160

Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu
165 170 175

Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn
180 185 190

Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser
195 200 205

Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr
210 215 220

His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile
225 230 235 240

Lys Pro Ser Pro Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln
245 250 255

<210> 66
<211> 1224
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (70)..(1041)
<223>

<400> 66
gcccatgtgtt tttgtaatct ctgaggagaa gcagcagcaa acatttgcta gtcagacaag 60

tgacaggga atg gat tcc aaa cac cag tgt gta aag cta aat gat ggc cac 111
Met Asp Ser Lys His Gln Cys Val Lys Leu Asn Asp Gly His
1 5 10

ttc atg cct gta ttg gga ttt ggc acc tat gca cct cca gag gtt ccg 159
Phe Met Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro
15 20 25 30

aga agt aaa gct ttg gag gtc aca aaa tta gca ata gaa gct ggg ttc 207
Arg Ser Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe
35 40 45

cgc cat ata gat tct gct cat tta tac aat aat gag gag cag gtt gga 255
183/201

| | |
|---|-----|
| Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly | |
| 50 55 60 | |
| ctg gcc atc cga agc aag att gca gat ggc agt gtg aag aga gaa gac | 303 |
| Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp | |
| 65 70 75 | |
| ata ttc tac act tca aag ctt tgg tcc act ttt cat cga cca gag ttg | 351 |
| Ile Phe Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu | |
| 80 85 90 | |
| gtc cga cca gcc ttg gaa aac tca ctg aag aaa gct caa ttg gac tat | 399 |
| Val Arg Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr | |
| 95 100 105 110 | |
| gtt gac ctc tat ctt att cat tct cca atg tct cta aag cca ggt gag | 447 |
| Val Asp Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu | |
| 115 120 125 | |
| gaa ctt tca cca aca gat gaa aat gga aaa gta ata ttt gac ata gtg | 495 |
| Glu Leu Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val | |
| 130 135 140 | |
| gat ctc tgt acc acc tgg gag gcc atg gag aag tgt aag gat gca gga | 543 |
| Asp Leu Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly | |
| 145 150 155 | |
| ttg gcc aag tcc att ggg gtg tca aac ttc aac cgc agg cag ctg gag | 591 |
| Leu Ala Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu | |
| 160 165 170 | |
| atg atc ctc aac aag cca gga ctc aag tac aag cct gtc tgc aac cag | 639 |
| Met Ile Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln | |
| 175 180 185 190 | |
| gta gaa tgt cat ccg tat ttc aac cgg agt aaa ttg cta gat ttc tgc | 687 |
| Val Glu Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys | |
| 195 200 205 | |
| aag tcg aaa gat att gtt ctg gtt gcc tat agt gct ctg gga tct caa | 735 |
| Lys Ser Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln | |
| 210 215 220 | |
| cga gac aaa cga tgg gtg gac ccg aac tcc ccg gtg ctc ttg gag gac | 783 |
| Arg Asp Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp | |
| 225 230 235 | |
| cca gtc ctt tgt gcc ttg gca aaa aag cac aag cga acc cca gcc ctg | 831 |
| Pro Val Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu | |
| 240 245 250 | |

att gcc ctg cgc tac cag ctg cag cgt ggg gtt gtg gtc ctg gcc aag 879
 Ile Ala Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys
 255 260 265 270

agc tac aat gag cag cgc atc aga cag aac gtg cag gtt ttt gag ttc 927
 Ser Tyr Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe
 275 280 285

cag ttg act gca gag gac atg aaa gcc ata gat ggc cta gac aga aat 975
 Gln Leu Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn
 290 295 300

ctc cac tat ttt aac agt gat agt ttt gct agc cac cct aat tat cca 1023
 Leu His Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro
 305 310 315

tat tca gat gaa tat taa catggagggc ttgcctgat gtctaccaga 1071
 Tyr Ser Asp Glu Tyr
 320

agccctgtgt gtggatggtg acgcagagga cgtctctatg ccggtgactg gacatatcac 1131

ctctacttaa atccgtcctg tttagcgaact tcagtcaact acagctgagt ccataggcca 1191

gaaagacaat aaatttttat cattttgaaa taa 1224

<210> 67
 <211> 323
 <212> PRT
 <213> Homo sapiens

<400> 67

Met Asp Ser Lys His Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
 1 5 10 15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro Arg Ser
 20 25 30

Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
 35 40 45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
 50 55 60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65 70 75 80

Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu Val Arg
85 90 95

Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr Val Asp
100 105 110

Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu Glu Leu
115 120 125

Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val Asp Leu
130 135 140

Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145 150 155 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
165 170 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
180 185 190

Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys Lys Ser
195 200 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln Arg Asp
210 215 220

Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225 230 235 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
245 250 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
186/201

260

265

270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
 275 280 285

Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn Leu His
 290 295 300

Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro Tyr Ser
 305 310 315 320

Asp Glu Tyr

<210> 68
 <211> 1715
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (37)..(591)
 <223>

<400> 68
 ccgtgctctg cctcctgtgt tccagggact ttgaac atg tgc ggg atc gcc ctc 54
 Met Ser Gly Ile Ala Leu
 1 5

agc aga ctc gcc cag gag agg aaa gca tgg agg aaa gac cac cca ttt 102
 Ser Arg Leu Ala Gln Glu Arg Lys Ala Trp Arg Lys Asp His Pro Phe
 10 15 20

ggt ttc gtg gct gtc cca aca aaa aat ccc gat ggc acg atg aac ctc 150
 Gly Phe Val Ala Val Pro Thr Lys Asn Pro Asp Gly Thr Met Asn Leu
 25 30 35

atg aac tgg gag tgc gcc att cca gga aag aaa ggg act ccg tgg gaa 198
 Met Asn Trp Glu Cys Ala Ile Pro Gly Lys Lys Gly Thr Pro Trp Glu
 40 45 50

gga ggc ttg ttt aaa cta cgg atg ctt ttc aaa gat gat tat cca tct 246
 Gly Gly Leu Phe Lys Leu Arg Met Leu Phe Lys Asp Asp Tyr Pro Ser
 55 60 65 70

| | |
|--|------|
| tcg cca cca aaa tgt aaa ttc gaa cca cca tta ttt cac ccg aat gtg | 294 |
| Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro Leu Phe His Pro Asn Val | |
| 75 80 85 | |
| tac cct tcg ggg aca gtg tgc ctg tcc atc tta gag gag gac aag gac | 342 |
| Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile Leu Glu Glu Asp Lys Asp | |
| 90 95 100 | |
| tgg agg cca gcc atc aca atc aaa cag atc cta tta gga ata cag gaa | 390 |
| Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile Leu Leu Gly Ile Gln Glu | |
| 105 110 115 | |
| ctt cta aat gaa cca aat atc caa gac cca gct caa gca gag gcc tac | 438 |
| Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro Ala Gln Ala Glu Ala Tyr | |
| 120 125 130 | |
| acg att tac tgg tta gta gca gcc ctg gcc ccg ctg gtg gca gct cct | 486 |
| Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala Pro Leu Val Ala Ala Pro | |
| 135 140 145 150 | |
| ccc cgt ccc agc caa ggc cgc ctg gca gga cgg gag tgg agc aca cag | 534 |
| Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly Arg Glu Trp Ser Thr Gln | |
| 155 160 165 | |
| gct cac cct agg gac agc cag ggt ccg cgc ctc tgt ggg gaa ggt cgg | 582 |
| Ala His Pro Arg Asp Ser Gln Gly Pro Arg Leu Cys Gly Glu Gly Arg | |
| 170 175 180 | |
| ggg gca taa accctgtggg cagcaggcac cgttgcaca' cgtctgcggt | 631 |
| Gly Ala | |
| gggcatggat ggcgccggag ccgtgtccag gggagggagc aggccagggtg acaggggctg | 691 |
| tcttgggcca ctgccccagt gagttgtggc cagctaggag gggaaggacc ctgggcgtgg | 751 |
| gtgccagagg aggccatgct gagaggcctc tccaccggt cagcctcccg tggaccccag | 811 |
| cctcccgcgc cgcccttgct gcttgtcccc atccccctcta caacttggtt ccttctgtgg | 871 |
| gggggcccag cccagcaggg ctgagtgacg tgatgctgtc acacggaccc tgggcttcca | 931 |
| ccctgtccct gtgaggtgct gctgtggcta gaagggtccc cgtgggcctg gggctcctgtc | 991 |
| tgcaccgagg agggcctggt gtgagttagg atgcagacga cagccaaaca gtgctgggga | 1051 |
| aagcaggag gaccctgccc tgagcagagg ccatgcgccc gcctgtcctg ttccctctgc | 1111 |
| agctgttctg ggcaggtcca taagaagggtg gggtggggcc tccgaccccc actgctccgc | 1171 |

ctgcagggtt gagaaaccca gccccatctc accacgggtc cccacacctc tgaggaggtc 1231
 tcagggccccc caatggccag ggaccagaa ggctcacctg cagccacccc acacatccct 1291
 gccactgttg gcatcagagg ccctctccct ccagggtgca tctcttggtc aggagggggg 1351
 agggccggtt gccttaggcc cggcctgcac aggtcgtgag gaaaagcacc tggtttcggc 1411
 cgggcgcggt ggctcacgt t gtaatccca gcactttggg aggccgaggt gggcgaatca 1471
 tgcggtcagg agttcgagac cagcctggcc aacatggcga aaccctcgtc cctactaaaa 1531
 atacaaaaaa ttagttgggc gtagtggttg gtgcctctaa tcccagctac ctgggaggct 1591
 gagacaggag aatcacttga acccgggagg cggaggttgc agtgagccga gatcctgcca 1651
 ctgctctcca gcctggcgac ggaggaatgc tgtctcaaaa aaaaaaaaaa aaaaaaaaaa 1711
 aaaa 1715

<210> 69
 <211> 184
 <212> PRT
 <213> Homo sapiens

<400> 69

Met Ser Gly Ile Ala Leu Ser Arg Leu Ala Gln Glu Arg Lys Ala Trp
 1 5 10 15

Arg Lys Asp His Pro Phe Gly Phe Val Ala Val Pro Thr Lys Asn Pro
 20 25 30

Asp Gly Thr Met Asn Leu Met Asn Trp Glu Cys Ala Ile Pro Gly Lys
 35 40 45

Lys Gly Thr Pro Trp Glu Gly Gly Leu Phe Lys Leu Arg Met Leu Phe
 50 55 60

Lys Asp Asp Tyr Pro Ser Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro
 65 70 75 80

Leu Phe His Pro Asn Val Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile
 85 90 95

Leu Glu Glu Asp Lys Asp Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile
 100 105 110

Leu Leu Gly Ile Gln Glu Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro
 115 120 125

Ala Gln Ala Glu Ala Tyr Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala
 130 135 140

Pro Leu Val Ala Ala Pro Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly
 145 150 155 160

Arg Glu Trp Ser Thr Gln Ala His Pro Arg Asp Ser Gln Gly Pro Arg
 165 170 175

Leu Cys Gly Glu Gly Arg Gly Ala
 180

<210> 70
 <211> 1327
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (100).. (966)
 <223>

<400> 70
 ctctctctccg cgcggggcgg gctccgcgcc acgtgactcc gcggccgggc cgggacgcga 60
 cgggacgcgc tgggaccggc gtcgggggtc gcggggacc atg cag cgg agg tgg 114
 Met Gln Arg Arg Trp
 1 5
 gtc ttc gtg ctg ctc gac gtg ctg tgc tta ctg gtc gcc tcc ctg ccc 162
 Val Phe Val Leu Leu Asp Val Leu Cys Leu Leu Val Ala Ser Leu Pro
 10 15 20
 ttc gct atc ctg acg ctg gtg aac gcc ccg tac aag cga gga ttt tac 210
 Phe Ala Ile Leu Thr Leu Val Asn Ala Pro Tyr Lys Arg Gly Phe Tyr
 25 30 35

| | |
|---|-----|
| tgc ggg gat gac tcc atc cgg tac ccc tac cgt cca gat acc atc acc Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg Pro Asp Thr Ile Thr 40 45 50 | 258 |
| cac ggg ctc atg gct ggg gtc acc atc acg gcc acc gtc atc ctt gtc His Gly Leu Met Ala Gly Val Thr Ile Thr Ala Thr Val Ile Leu Val 55 60 65 | 306 |
| tcg gcc ggg gaa gcc tac ctg gtg tac aca gac cgg ctc tat tct cgc Ser Ala Gly Glu Ala Tyr Leu Val Tyr Thr Asp Arg Leu Tyr Ser Arg 70 75 80 85 | 354 |
| tcg gac ttc aac aac tac gtg gct gct gta tac aag gtg ctg ggg acc Ser Asp Phe Asn Asn Tyr Val Ala Ala Val Tyr Lys Val Leu Gly Thr 90 95 100 | 402 |
| ttc ctg ttt ggg gct gcc gtg agc cag tct ctg aca gac ctg gcc aag Phe Leu Phe Gly Ala Ala Val Ser Gln Ser Leu Thr Asp Leu Ala Lys 105 110 115 | 450 |
| tac atg att ggg cgt ctg agg ccc aac ttc cta gcc gtc tgc gac ccc Tyr Met Ile Gly Arg Leu Arg Pro Asn Phe Leu Ala Val Cys Asp Pro 120 125 130 | 498 |
| gac tgg agc cgg gtc aac tgc tcg gtc tat gtg cag ctg gag aag gtg Asp Trp Ser Arg Val Asn Cys Ser Val Tyr Val Gln Leu Glu Lys Val 135 140 145 | 546 |
| tgc agg gga aac cct gct gat gtc acc gag gcc agg ttg tct ttc tac Cys Arg Gly Asn Pro Ala Asp Val Thr Glu Ala Arg Leu Ser Phe Tyr 150 155 160 165 | 594 |
| tcg gga cac tct tcc ttt ggg atg tac tgc atg gtg ttc ttg gcg ctg Ser Gly His Ser Ser Phe Gly Met Tyr Cys Met Val Phe Leu Ala Leu 170 175 180 | 642 |
| tat gtg cag gca cga ctc tgt tgg aag tgg gca cgg ctg ctg cga ccc Tyr Val Gln Ala Arg Leu Cys Trp Lys Trp Ala Arg Leu Leu Arg Pro 185 190 195 | 690 |
| aca gtc cag ttc ttc ctg gtg gcc ttt gcc ctc tac gtg ggc tac acc Thr Val Gln Phe Phe Leu Val Ala Phe Ala Leu Tyr Val Gly Tyr Thr 200 205 210 | 738 |
| cgc gtg tct gat tac aaa cac cac tgg agc gat gtc ctt gtt ggc ctc Arg Val Ser Asp Tyr Lys His His Trp Ser Asp Val Leu Val Gly Leu 215 220 225 | 786 |
| ctg cag ggg gca ctg gtg gct gcc ctc act gtc tgc tac atc tca gac 191/201 | 834 |

| | |
|--|------|
| Leu Gln Gly Ala Leu Val Ala Ala Leu Thr Val Cys Tyr Ile Ser Asp | |
| 230 235 240 245 | |
| ttc ttc aaa gcc cga ccc cca cag cac tgt ctg aag gag gag gag ctg | 882 |
| Phe Phe Lys Ala Arg Pro Pro Gln His Cys Leu Lys Glu Glu Glu Leu | |
| 250 255 260 | |
| gaa cgg aag ccc agc ctg tca ctg acg ttg acc ctg ggc gag gct gac | 930 |
| Glu Arg Lys Pro Ser Leu Ser Leu Thr Leu Thr Leu Gly Glu Ala Asp | |
| 265 270 275 | |
| cac aac cac tat gga tac cgg cac tcc tcc tcc tga ggccggaccc | 976 |
| His Asn His Tyr Gly Tyr Pro His Ser Ser Ser | |
| 280 285 | |
| cgcccaggca gggagctgct gtgagtccag ctgaggccca cccaggtggt ccctccagcc | 1036 |
| ctggtttaggc actgagggct ctggacgggc tccaggaacc ctgggctgat gggagcagtg | 1096 |
| agcgggctcc gctgccccct gccctgcact ggaccaggag tctggagatg cctgggtagc | 1156 |
| cctcagcatt tggaggggaa cctgttcccg tcggtcccca aatatccct tctttttatg | 1216 |
| gggttaagga agggaccgag agatcagata gttgctgttt tgtaaaatgt aatgtatatg | 1276 |
| tggttttttag taaaataggg cacctgtttc aaaaaaaaaa aaaaaaaaaa a | 1327 |

<210> 71
 <211> 288
 <212> PRT
 <213> Homo sapiens

<400> 71

| |
|---|
| Met Gln Arg Arg Trp Val Phe Val Leu Leu Asp Val Leu Cys Leu Leu |
| 1 5 10 15 |

| |
|---|
| Val Ala Ser Leu Pro Phe Ala Ile Leu Thr Leu Val Asn Ala Pro Tyr |
| 20 25 30 |

| |
|---|
| Lys Arg Gly Phe Tyr Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg |
| 35 40 45 |

| |
|---|
| Pro Asp Thr Ile Thr His Gly Leu Met Ala Gly Val Thr Ile Thr Ala |
| 50 55 60 |

Thr Val Ile Leu Val Ser Ala Gly Glu Ala Tyr Leu Val Tyr Thr Asp
65 70 75 80

Arg Leu Tyr Ser Arg Ser Asp Phe Asn Asn Tyr Val Ala Ala Val Tyr
85 90 95

Lys Val Leu Gly Thr Phe Leu Phe Gly Ala Ala Val Ser Gln Ser Leu
100 105 110

Thr Asp Leu Ala Lys Tyr Met Ile Gly Arg Leu Arg Pro Asn Phe Leu
115 120 125

Ala Val Cys Asp Pro Asp Trp Ser Arg Val Asn Cys Ser Val Tyr Val
130 135 140

Gln Leu Glu Lys Val Cys Arg Gly Asn Pro Ala Asp Val Thr Glu Ala
145 150 155 160

Arg Leu Ser Phe Tyr Ser Gly His Ser Ser Phe Gly Met Tyr Cys Met
165 170 175

Val Phe Leu Ala Leu Tyr Val Gln Ala Arg Leu Cys Trp Lys Trp Ala
180 185 190

Arg Leu Leu Arg Pro Thr Val Gln Phe Phe Leu Val Ala Phe Ala Leu
195 200 205

Tyr Val Gly Tyr Thr Arg Val Ser Asp Tyr Lys His His Trp Ser Asp
210 215 220

Val Leu Val Gly Leu Leu Gln Gly Ala Leu Val Ala Ala Leu Thr Val
225 230 235 240

Cys Tyr Ile Ser Asp Phe Phe Lys Ala Arg Pro Pro Gln His Cys Leu
245 250 255

Lys Glu Glu Glu Leu Glu Arg Lys Pro Ser Leu Ser Leu Thr Leu Thr
193/201

260

265

270

Leu Gly Glu Ala Asp His Asn His Tyr Gly Tyr Pro His Ser Ser Ser
 275 280 285

<210> 72
 <211> 2980
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (274)..(519)
 <223>

<220>
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 <222> (2974)..(2974)
 <223> n = a, t, g or c

<400> 72
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 ggaacaggcc gccgcgcgct gcgcgccgga cccgctgccc ctgccggccc ggccgggtcg 120
 ggccggcccag ggaccgacag acttgacaac ggtgacagca ctggggcggc accttcctac 180
 ttctgcccag ccacagccct cccctcacag ttgagcacct gtttgccctga agttaatttc 240
 cagaagcagg agtccccaga gccaggcagg ggg atg aac cgc gag gga gct ccc 294
 Met Asn Arg Glu Gly Ala Pro
 1 5
 ggg aag agt ccg gag gag atg tac att cag cag aag gtc cga gtg ctg 342
 Gly Lys Ser Pro Glu Glu Met Tyr Ile Gln Gln Lys Val Arg Val Leu
 10 15 20
 ctc atg ctg cgg aag atg gga tca aac ctg aca gcc agc gag gag gag 390
 Leu Met Leu Arg Lys Met Gly Ser Asn Leu Thr Ala Ser Glu Glu Glu
 25 30 35
 ttc ctg cgc acc tat gca ggg gtg gtc aac agc cag ctc agc cag ctg 438
 Phe Leu Arg Thr Tyr Ala Gly Val Val Asn Ser Gln Leu Ser Gln Leu
 40 45 50 55
 cct ccg cac tcc atc gac cag ggt gca gag gac gtg gtg atg gcg ttt 486
 Pro Pro His Ser Ile Asp Gln Gly Ala Glu Asp Val Val Met Ala Phe
 194/201

| 60 | 65 | 70 | |
|--|----|----|------|
| tcc agg tgc gag acg gaa gac cgg agg cag tag ctgcaaagcc cttggaacac | | | 539 |
| Ser Arg Ser Glu Thr Glu Asp Arg Arg Gln | | | |
| 75 | 80 | | |
| cctggatgct gttgaagggc caagagatct gtgtggctcc tgggccggct gaatggcagc | | | 599 |
| agccccctt gccccacctc ccccttcctt acccaaccct gccctgcccc accccacctc | | | 659 |
| acagctactc agtggggctg gcatcaaggg agacaccagt ggtgcgttta taattggctt | | | 719 |
| aaagggatgg acttgtgatt ggctgcagga agaaactttt ttatttttta aatcttgacc | | | 779 |
| aacagaaacc ttttattttt atttctgact cttatttttt aaaaaatttg cgcctcggtta | | | 839 |
| tctggcttcc ctggaagctc tccgagctct ggtgcttttag ttaggtcatt tttttagaaa | | | 899 |
| tgtgaagagg tctgattggc tgcttaaaact ggaaaggagc tgtgattggc tggttaatgg | | | 959 |
| gaaacggttt ttttcttttg ctgcaggtgt tctgctgata tcaacagctt ccctattttg | | | 1019 |
| aatgcagaaa acagggtctg ggacattagt cgttatattt gacttgaaaa gaaagaaacc | | | 1079 |
| aagtgcgctt tgcaatattt attacacaaa gaacttgctg ctgccttcac atttgggggtt | | | 1139 |
| tgtgtttgat tggctttcga tgcgtgtgtt tggtttccca ttggttcacc tgtgactcct | | | 1199 |
| gttgccatgg attcaccccc ctctgctgcc ggctctgggc ctgagggtcc acctggagag | | | 1259 |
| tacatttgct ttaatgagtg cacctgcctc caccagcaag gggaccccgga gaaccctgag | | | 1319 |
| cagggtccac agctggaaag ttgggcccct gaggagcttt gtgtcgtctt gaacgagcag | | | 1379 |
| cccagggcct agaggtaacc gttaggcggg atttatgtgc actgcctgca tgagctggca | | | 1439 |
| accagccagc gtcccttggg gagaaaggga ttgctgagge accgtccagg ccccaccggc | | | 1499 |
| caggccgcgc ccagcagagg cgtactaccc agctctgtcc tcttgcccat ccttctgtgt | | | 1559 |
| accatttctt gaggcctcat tttgggggtc atcttggaag ggggaggagc ttctcccagt | | | 1619 |
| gtgagacccc aaagactctg gaggtcatct ggcggaggtc tctgggagcc cagaaccac | | | 1679 |
| ataaaagccc cagcttggtc cacaaggccc aggagacctc cagctaaaca ccaaccctg | | | 1739 |
| acctaccca gccaggtcc tacctgtctg ctgccagcac agtaggtccc ggccagctct | | | 1799 |
| ggagttctct catcggaggc ccatgccctc cactccactg cctttggaag ggtctctctc | | | 1859 |

caggtcagcc tggaaggac agtatcggtt gtttatgaaa tgccactggg acagctggct 1919
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gcagttcaga atggcagtc tggaggcagg gggtagggg caggtctagt gttcctgcac 2039
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ggccttgctt ttgtaacaat gatgaccccg gcctgtctca tcttctgaag aggaaaagtc 2879
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caataaagaa ttttcatagg ttaaaaaaaaa aaanaaaaaa g 2980

<210> 73
<211> 81
<212> PRT
<213> Homo sapiens

<400> 73

Met Asn Arg Glu Gly Ala Pro Gly Lys Ser Pro Glu Glu Met Tyr Ile
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Gln Gln Lys Val Arg Val Leu Leu Met Leu Arg Lys Met Gly Ser Asn
 20 25 30

Leu Thr Ala Ser Glu Glu Glu Phe Leu Arg Thr Tyr Ala Gly Val Val
 35 40 45

Asn Ser Gln Leu Ser Gln Leu Pro Pro His Ser Ile Asp Gln Gly Ala
 50 55 60

Glu Asp Val Val Met Ala Phe Ser Arg Ser Glu Thr Glu Asp Arg Arg
 65 70 75 80

Gln

<210> 74
 <211> 2153
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (589).. (1356)
 <223>

<400> 74
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 gcagaaagag cgggagctgc gactgctcat gcttggcctg gacaatgctg gaaagacaac 120
 catcctgaag aagttcaatg gggaggacat cgacaccatc tccccaacgc tgggcttcaa 180
 catcaagacc ctggagcacc gaggattcaa gctgaacatc tgggatgtgg gtggccagaa 240
 gtccctgcgg tectactggc ggaactactt tgagagcacc gatggcctca tctgggtagt 300
 ggacagcgca gaccgccage gcatgcagga ctgccagcgg gagctccaga gcctgctggt 360
 ggaggagtga cctgggttta cgcttcacca cagagaagga acttttcaga cgctcccttg 420
 gccgcgcacc cgggatcgga acagcgctgt cacttgcgac aaaatcccta ggccagagga 480
 agaagagcgc aggcctgggc gaggcggcgg cgggcggagg ctgggccgga ggggtgggga 540
 cggcgaggag gtggaggccg gcgctccgct ccgctccage tcggtttc atg tcc cgc 597

Met Ser Arg
1

| | |
|---|------|
| cag gcg aag gat gac ttc ctg cgg cac tac aca gtg tcg gac ccc agg Gln Ala Lys Asp Asp Phe Leu Arg His Tyr Thr Val Ser Asp Pro Arg 5 10 15 | 645 |
| act cac ccc aag ggc tac acc gag tac aaa gta acc gcg cag ttc atc Thr His Pro Lys Gly Tyr Thr Glu Tyr Lys Val Thr Ala Gln Phe Ile 20 25 30 35 | 693 |
| tca aag aag gac cca gag gat gtc aaa gag gtg gtc tgg aag cgg Ser Lys Lys Asp Pro Glu Asp Val Lys Glu Val Val Val Trp Lys Arg 40 45 50 | 741 |
| tac agc gac ttc cgc aag ctg cat gga gac ctg gcc tac acc cac cgc Tyr Ser Asp Phe Arg Lys Leu His Gly Asp Leu Ala Tyr Thr His Arg 55 60 65 | 789 |
| aac ctc ttc cgc cgc ctc gag gag ttc cct gct ttc ccc cgg gcc cag Asn Leu Phe Arg Arg Leu Glu Glu Phe Pro Ala Phe Pro Arg Ala Gln 70 75 80 | 837 |
| gtg ttt ggc cgg ttt gaa gcc tca gtg atc gag gag cgg cga aag ggg Val Phe Gly Arg Phe Glu Ala Ser Val Ile Glu Glu Arg Arg Lys Gly 85 90 95 | 885 |
| gca gag gac ctg ctt cgc ttc act gtg cac ata cct gcg ctc aac aac Ala Glu Asp Leu Leu Arg Phe Thr Val His Ile Pro Ala Leu Asn Asn 100 105 110 115 | 933 |
| agc ccc cag ctc aag gag ttc ttc cgg ggt ggg gag gtg acc cga ccc Ser Pro Gln Leu Lys Glu Phe Phe Arg Gly Gly Glu Val Thr Arg Pro 120 125 130 | 981 |
| ttg gag gtg tcc agg gac cta cac atc ctg cca ccc cct ctg atc ccc Leu Glu Val Ser Arg Asp Leu His Ile Leu Pro Pro Pro Leu Ile Pro 135 140 145 | 1029 |
| acc ccg ccc cct gat gac ccc cgg cta tcc caa ctg ctc cct gca gaa Thr Pro Pro Pro Asp Asp Pro Arg Leu Ser Gln Leu Leu Pro Ala Glu 150 155 160 | 1077 |
| agg agg ggc ctc gag gaa ttg gag gtg cca gtg gac ccc cca cca tcc Arg Arg Gly Leu Glu Glu Leu Glu Val Pro Val Asp Pro Pro Pro Ser 165 170 175 | 1125 |
| agc cct gcc cag gag gcc ctg gat ctc ctc ttt aac tgt gag agc acc Ser Pro Ala Gln Glu Ala Leu Asp Leu Leu Phe Asn Cys Glu Ser Thr 180 185 190 195 | 1173 |

| | |
|--|------|
| gag gag gca tct ggt tcc cct gcc cga ggc ccc ctc acc gag gct gag | 1221 |
| Glu Glu Ala Ser Gly Ser Pro Ala Arg Gly Pro Leu Thr Glu Ala Glu | |
| 200 205 210 | |
| ctt gcc ctc ttc gac ccc ttc tcc aag ggt gac ccg ttg cct gcc cgc | 1269 |
| Leu Ala Leu Phe Asp Pro Phe Ser Lys Gly Asp Pro Leu Pro Ala Arg | |
| 215 220 225 | |
| cag gaa ggt gtg aag aag aag gca gct gag tac ctg aag cgg gca gag | 1317 |
| Gln Glu Gly Val Lys Lys Lys Ala Ala Glu Tyr Leu Lys Arg Ala Glu | |
| 230 235 240 | |
| gag atc ctg cgc ctg cac ctg tct caa ctc cca ccc taa cagggagtgg | 1366 |
| Glu Ile Leu Arg Leu His Leu Ser Gln Leu Pro Pro | |
| 245 250 255 | |
| gccattccct gggactctca ctctgcaact gccagccctt tctcctctcc ccagggcctg | 1426 |
| gccctacctc ctggtcttgt aattacagga gccatttctg taggtaactg gaccaagaat | 1486 |
| gagaaaaata atgaattctt agctccctga ttacacctgc caccttggaa tccaggactc | 1546 |
| acatttctga ccctgcctgt ctttttgggg tttttttgag ttggagtctc gctgtgtcgc | 1606 |
| ccagactgga gtgcagtggg gggatcgagg ctcaactgaa cctccacctc ccaggttcaa | 1666 |
| gcagttctcc tgtctcagcc tccccagtag ctgagattgc aggcacatgc caccagcccc | 1726 |
| agctaataatt ttgtattttc agtagggacg gggttacacc atgttggcca ggctggtctc | 1786 |
| gaactcctga cctcaagtga tccaccggcc tcagtctccc aaagtgtga gattacaggc | 1846 |
| atgagtcact acgcccggcc catgtctgtc tgtcttgatg tgtgagcagc agctgtggtc | 1906 |
| attaaacat tagttttacc cttctagaact ggggtctgca aactcccacc tgcagccaaa | 1966 |
| tctggcccac ctctttttta atgtaagggc tgtgagagtg gtttttactt tttttaatga | 2026 |
| ttaaaaaat caaaataata ttctgtgaca atgacagggtg aaatttatat gtgacaagtg | 2086 |
| aaaattatat gaaatttaag agtccataaa taaaatttgt tggaacacaa aaaaaaaaaa | 2146 |
| aaaaaaaa | 2153 |

<210> 75
 <211> 255
 <212> PRT
 <213> Homo sapiens

<400> 75

Met Ser Arg Gln Ala Lys Asp Asp Phe Leu Arg His Tyr Thr Val Ser
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Asp Pro Arg Thr His Pro Lys Gly Tyr Thr Glu Tyr Lys Val Thr Ala
20 25 30

Gln Phe Ile Ser Lys Lys Asp Pro Glu Asp Val Lys Glu Val Val Val
35 40 45

Trp Lys Arg Tyr Ser Asp Phe Arg Lys Leu His Gly Asp Leu Ala Tyr
50 55 60

Thr His Arg Asn Leu Phe Arg Arg Leu Glu Glu Phe Pro Ala Phe Pro
65 70 75 80

Arg Ala Gln Val Phe Gly Arg Phe Glu Ala Ser Val Ile Glu Glu Arg
85 90 95

Arg Lys Gly Ala Glu Asp Leu Leu Arg Phe Thr Val His Ile Pro Ala
100 105 110

Leu Asn Asn Ser Pro Gln Leu Lys Glu Phe Phe Arg Gly Gly Glu Val
115 120 125

Thr Arg Pro Leu Glu Val Ser Arg Asp Leu His Ile Leu Pro Pro Pro
130 135 140

Leu Ile Pro Thr Pro Pro Pro Asp Asp Pro Arg Leu Ser Gln Leu Leu
145 150 155 160

Pro Ala Glu Arg Arg Gly Leu Glu Glu Leu Glu Val Pro Val Asp Pro
165 170 175

Pro Pro Ser Ser Pro Ala Gln Glu Ala Leu Asp Leu Leu Phe Asn Cys
180 185 190

Glu Ser Thr Glu Glu Ala Ser Gly Ser Pro Ala Arg Gly Pro Leu Thr
195 200 205

Glu Ala Glu Leu Ala Leu Phe Asp Pro Phe Ser Lys Gly Asp Pro Leu
210 215 220

Pro Ala Arg Gln Glu Gly Val Lys Lys Lys Ala Ala Glu Tyr Leu Lys
225 230 235 240

Arg Ala Glu Glu Ile Leu Arg Leu His Leu Ser Gln Leu Pro Pro
245 250 255